

CAR OF THE YEAR! Who Won? FAST FLAMES! Learn how to paint 'em

page 228

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THE WORLD'S BEST-SELLING RC CAR MAGAZINE

3 SPEED BIG BLOCK!

MAD FORCE

We drive Kyosho's
new monster

**FACTORY
RACER
REPLICA**
Team Losi
Adam Drake XNT

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your stocker!** page 180

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**NEW NITRO
READY-TO-RUNS
TESTED**
OFNA 9.5
HPI Super Nitro RS4
CEN GX1

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AUGUST 2002

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NUMBER 8
AUGUST 2002

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ON THE COVER: Kyosho's Mad Force touches down from a sub-orbital hop. Moment frozen in time by Walter Sidas.

It's a big-block world ...

... at least, it's shaping up to be. Kyosho's Mad Force (tested for this issue) marks the company's return to big-block truckdom, and rumors persist that Traxxas' T-Maxx follow-up will be .21-powered. Schumacher has had much success with its .21-equipped 1/10-scale "Extreme" truck (and will soon release the Fusion, which shoehorns a big-block mill into a standard-size touring chassis); and traditionally .21-powered 1/8-scale buggies continue to flourish as first-timer-friendly ready-to-runs. Want proof? Just look at OFNA's huge stable of RTR buggies, the DuraTrax Axis (RC's first RTR big buggy), Hot Bodies' new Lightning and GS Racing's excellent Storm. Big-block conversions are also popular; no fewer than five companies now offer .21 conversion kits for the T-Maxx (we tested the latest from XTM for this issue), HPI's Super Nitro RS4 can accept a big-block mill with aftermarket help, and there are no doubt more kits on the way to adapt .21 power to cars normally equipped with .12 or .15 powerplants.

The reason for the popularity of big-block machines is obvious: power. Lots of power. Even the mildest .21 engine makes gobs of it—more than enough to satisfy any "normal" RC guy (power freaks may disagree; see "Backlot"!). But I see an additional, potential benefit to the bigger-is-better mode that is sweeping nitro RC. A .21 engine, simply by virtue of its extra displacement, doesn't have to work as hard to propel a vehicle as a smaller engine does. If the engine is working less hard, that must help extend its life. I'm confident the extra ponies could also spin a fairly heavy flywheel without compromising the engine's performance for fun running. Racers and performance-first hobbyists could always go for a lighter flywheel, but for those of us who just want to run all day, a weighty flywheel would help keep that big jug pumping even if we don't have the best tuning skills.

And why not add electric starting? If the Traxxas TRX .15 engine capably hauls a hefty T-Maxx and still has power enough to carry an on-board starter, a big-block can certainly be equipped with a push-button starting system. It's all about fun; nitro power has made great strides in user-friendliness in the last five years, but I think the fuel-power segment is ready for the next level of convenience and reliability. Wouldn't it be great if your nitro car or truck were as easy to operate as a Toyota Corolla?

That's something to think about!

Until next time ...
Peter Vieira
Executive Editor



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has tubes to store tires



Mini-Z F1



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STRAIGHT-LINE FEVER

I really, really enjoyed the July 2002 issue's "World's Quickest Draggers." Those cars are awesome! I only wish you guys had action shots or, better yet, a video on your website. Still, it was really cool; good job. Do more drag stuff! [email]

Ray T.



Glad you liked it, Ray. Action photography with drag cars is tough; when you have 10 cells, a silly motor and an on/off switch for a speed control, it's hard to make a safe pass for the camera! I suppose we could have run Charlie's nitro rail, but we didn't want to have action shots of one car and not the other (plus, we didn't want to risk wadding that beautiful, one-of-a-kind dragster, which was not ours to wreck).

—Pete

STORM WRAPPER

I own a GS Racing Storm, and I noticed a difference in the body of the Storm in the O.S. V-01b engine test article, and my own Storm's stock body. Is this a new body by Pro-Line or a revamp by GS? The body also looks as if it could be a stock Mugen MBX4, although I could be mistaken. Perhaps it's an OFNA Ultra Worlds II body? [email]

Luke I.

It's a Pro-Line Crowd Pleazer designed to fit the Inferno. I had to do some extra trimming around the front shock tower and reposition the body-mount holes, but otherwise, it fits great! Did you like my red fading into red with red stripes paint job?

—Pete

IT'S GRAPHITE

I read the "Track Test" on the Corally SP12M, and I am interested in getting one. In the article, you tested a graphite version. I looked on the Internet and didn't find a graphite version. I did find the fiberglass kit for \$130 and then a graphite conversion kit for \$100. Is there a kit that comes with the shiny stuff, or did you add the graphite yourself? Keep up the great work! [email]

Jake Walahoski

You went to corallyusa.com—right? The \$130 kit is an SP12M GRP, which is the car I tested, and it is graphite. But I can understand your confusion; since Corally offers an SP12M graphite conversion kit, that must mean the standard kit is not graphite. What the conversion kit really does is adapt the SP12M for

6-cell use. And it's also made of graphite, which is why Corally USA lists it as "SP12M 6-cell graphite conversion."

—Pete

BEEN THERE, DONE THAT

I have a new Maxx "Project" for you RC Car Action guys. How about a T-Maxx with a third gear? If you go to Radrc.com, you'll find about five kits for a three-gear Maxx. If you slap that on a .21 converted T-Maxx, you'll have the pimpest T-Maxx ever. Heck; you could get really creative by adding a kit that

will allow all four wheels to steer your Maxx.

[email]

Adam Gordon

Kevin Hetmanski, the "4x4" guy, has already featured a 3-speed Maxx; you can check it out in the February 2002 issue. He didn't install a .21, though—maybe next time!

—Pete

YES

Hey, Pete, I got a question for ya: is the XRAY T1 worth the money? I'm thinking of getting one. I figured that you would be the person to ask, since you picked it as the best car in the "Electric Touring Car Smackdown" (December 2001). Just from looking at it, it's obvious that it has the best quality and craftsmanship among electric touring cars, but is it fast? Does it handle well? [email]

Doug Vernon



I did pick the XRAY T1 as my favorite car in the "Smackdown," and I will never forget it, since XRAY has stuck my mug in its ads; that can't be good for sales! Like any electric touring car, the T1 will go as fast as the motor, battery and gearing setup you install will allow. Likewise, the car will handle in any way you want it to, but be warned: when you have a car that's as adjustable as the T1 is, it's very easy to dial yourself into a bad

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setup if you don't know what you're doing. If you get an XRAY, build it with the suggested kit settings first; it's a good all-around setup. From there, make small changes, one at a time, and keep notes on what does and does not improve its handling. That's good advice for tuning any racecar; maybe I should start following it myself!

—Pete

BETTER TO ASK

I have a question about starting a local parking lot race. Where do I start? The local university has many parking lots that aren't used on the weekends, but do I need written permission to race there? Also, what will I need? Do I need markers and wood to mark off the track? How do I get more people from my area to come to race?

David Finch
Independence, LA

If it's just you and a bunch of friends showing up to play, just go for it; if campus security has a problem, they'll let you know. It shouldn't be a problem; if it is, it usually goes like this: "Sorry fellas, but we don't allow folks to use the parking lots on the weekends. Can I try that thing?"

Organized racing is a different story and a much bigger deal. You definitely need permission, the question of insurance will undoubtedly come up, and suddenly, you aren't having a lot of fun. It's best to leave that sort of promotion to track owners; they have all the insurance and facilities already lined up.

If you and your buddies keep showing up at the university parking lot regularly (and you don't draw negative attention to yourselves by littering or otherwise behaving badly), I think other RC guys in the area will find you, and the next thing you know, you'll have a full-fledged scene going. That can be even more fun than a big, official race.

—Pete

YOU SAID IT

"If anyone can help someone else get into RC, he should do it."

I was in the local hobby store about a month ago. At the back of the store was a guy looking at a Traxxas T-Maxx and a DuraTrax Evader. After a bit of wandering through the store, I noticed that he was not getting answers to his questions, so I offered to help; I have been into RC since I was 12 or 13 (I'm 25 now). I offered to let him try my T-Maxx, and the next weekend, he showed up with a friend who has an Evader, and we all went to the BMX track. I let them both have a good run with my T-Maxx, and they were very impressed by it. Yesterday, they showed up at my house out of the blue. My friend with the Evader had just bought a used T-Maxx he saw advertised in the newspaper classifieds, but he could not get it running. The truck looked to be in great shape, but the EZ-Start had a shorted wire for the glow plug. After about five minutes I had adjusted his gear mesh, solved a radio glitch and got it up and running very well; I even gave him my trees of stock shock shims, as his truck sat very low, and mine now has threaded-aluminum shocks. We now have plans to get together to go racing.

I just wanted to let everyone know how great it felt to help someone get into this fantastic hobby, and if anyone else out there can help someone get into RC, he should do it. [email]
Adam Sanders

Right you are, Adam. Of course, it helps our sport grow, but more important, it's just plain fun and helps you make friends (which means there are more guys available to cover your lunch on race days). Thanks for being one of the good guys, Adam!

—Pete

Each month, "Readers Write" sponsor Team Trinity awards the "You said it" letter writer the Reference body of his choice. This is the Wasp—custom-fit for the Kyosho Inferno MP 7.5.



WRITE TO US! We welcome your photos, drawings, comments and suggestions. Letters should be addressed to "Letters," Air Age Inc., Radio Control Car Action, 100 East Ridge, Ridgefield, CT 06877-4606 USA. Letters may be edited for clarity and brevity, and each must include a full name and address or telephone number so that the identity of the sender can be verified. We regret that, owing to the tremendous numbers of letters we receive, we can't respond to every one.

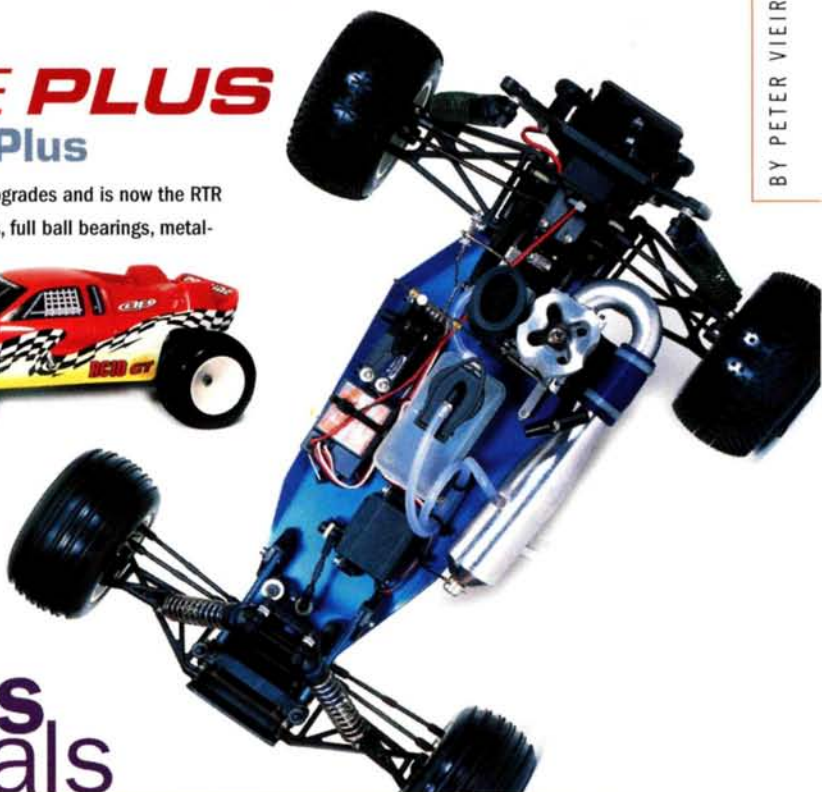
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PERFORMANCE PLUS

Associated RC10GT RTR Plus

Associated's popular RC10GT RTR has been treated to some choice upgrades and is now the RTR "Plus." Plus what, you ask? Plus a Factory Team long-wheelbase chassis, full ball bearings, metal-gear servos and a restyled racing body (available in blue and red). The Plus model also includes a fuel bottle and a glow igniter with charger as well as a new Thunder Tiger radio set with independently adjustable endpoints. And all the original RTR features return: blue aluminum shocks, Associated .15 engine, tuned pipe and more. Here's the best part: it is projected to sell for only \$20 (or so) more than the original!

Team Associated (714) 850-9342; teamassociated.com.



precious minerals

Trinity Speed Gems Pro motors

Trinity's Speed Gems machine-wound modifieds have been cheap-speed staples for years and could probably go on unchanged with no complaints, but why stop at good enough? Trinity has revamped the line by adding the new "Pro" motors that, in the Gem tradition, are named after fancy rocks. This time, it's Amber (17-double), Titanite (15-double), Kobal (13-double), Jet (11-double) and Cryptonite (9-double—yikes!). But the winds aren't the big story; the can-and-endbell tech gives the new Gems "Pro" status. Trinity's innovative D4 can is the foundation for the motors, and the all-new P-94 endbell caps the cans. That means you get pure copper, low-resistance brush hoods, three surface-mounted capacitors (no soldering!) and Trinity's exclusive "Big Brush" setup for longer brush life and more power (three times more, according to Trinity). Like the original Gems, all Speed Gems Pro motors feature dual ball bearings and adjustable timing as well as something else from the "old" motors: the same low price.

Trinity Products Inc. (732) 635-1600; teamtrinity.com.



Trinity Reference Wasp

Trinity's Reference line now includes a shell to set your Kyosho Inferno MP 7.5 apart from the other guys'. The Wasp offers more than just distinctive good looks: scoops behind the side windows and on top of the cockpit feed fresh air to the engine; trim lines for the heat-sink-head opening, exhaust stinger and fuel-tank access hole are deeply scribed; and overspray film protects the exterior as you sling the colors. Window masks and Reference decals are included, too. Bill Zegers of Zegers' RC Grafix painted this one.



STIFF STUFF

Golden Horizons 7075 T6 chassis

GH didn't waste time getting these trick chassis for the HPI Nitro RS4 3 and Associated Nitro TC3 out the door. The 7075 T6 slabs o' aluminum have been tastefully excavated for a spidery, high-tech look, and all the edges are beveled (and finger-friendly). Added bonus: finned engine mounts!

Golden Horizons

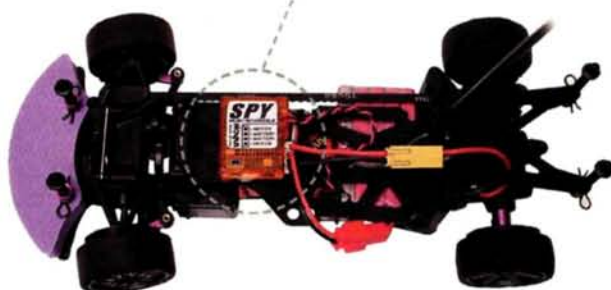
(604) 331-2526; ghhobby.com.



Novak Spy reversing micro speed control

As the mini- and micro-car scene continues to grow, it makes sense that Novak would jump in with an ESC just for the little guys. The Spy is designed for use with any 4- to 7-cell, 1/4- to 1/8-scale RC car and includes all of Novak's hallmark features including One-Touch Set-Up, Radio Priority circuitry, Polar Drive, thermal-overload protection, Smart Braking and reverse disable. The Spy is also Novak's smallest and lightest speed control to date (28x24x12mm; 14 grams). Installed HPI-type connectors allow plug-and-play installation in the Micro RS4, Dynamite Rocket Racer and other cars equipped with the appropriate connectors. Of course, you can also install any plugs you need for your application, but Novak is careful to note that the Spy is not intended for use in RC cars with 380- or 540-size motors, as found in 1/2- and 1/10-scale cars.

Novak Electronics (949) 833-8873; teamnovak.com.



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A Visit to the Vette

HPI Micro RS4 RTR Corvette C5-R

LONG AND WIDE can't help but deliver more stick, so HPI's Corvette C5-R should be the hot setup for slick-surface Micro RS4 action, and you'll be able to hit the track fast, since it's the latest Micro RS4 RTR! The Vette shell arrives painted and trimmed with decals applied and includes a new molded wing. HPI's TX-2 radio system and new Micro Reversible ESC keep you in control, and a

brand-new plug-retainer system keeps wires and connectors away from the drive train. While you're picking up your Micro RS4 RTR, why not spring for a trick titanium antenna (left)? The shortie "whip"-style antenna includes mounting hardware and doesn't require you to cut the receiver antenna wire.

HPI Racing (949) 753-1099; hpiracing.com.



Le Mans Monster HPI Saleen S7R

YOUR CHANCES of driving Steve Saleen's 600hp American supercar are virtually nil, but HPI can put you behind the wheel for peanuts with this new shell. Two large decal sheets give you all the details, and there are window lines, headlights, grills, taillights and officially licensed logos to spare. But don't break out the X-Acto; every decal is die-cut, so all you have to do is peel and stick! Overspray film is

applied at the factory, and vinyl window masks make painting quick and simple. Two

wings are included with each body set—one for a "street" look and another for high-downforce competition. HPI even includes headlight buckets for a true "3D" look (or, if you aren't a total realism freak, you can just stick on "flat" headlight decals; HPI includes decals for both setups).

HPI Racing (949) 753-1099; hpiracing.com.



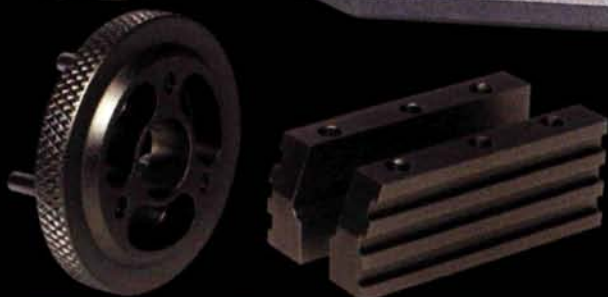
Reflex NT



NT2521, Reflex NT/Serpent 2 Speed & Pinion Wrench



NT2523, Reflex NT Tie-Rod Wrench



NT2524, Reflex NT Low CG Motor Mount And Flywheel, Increases Handling

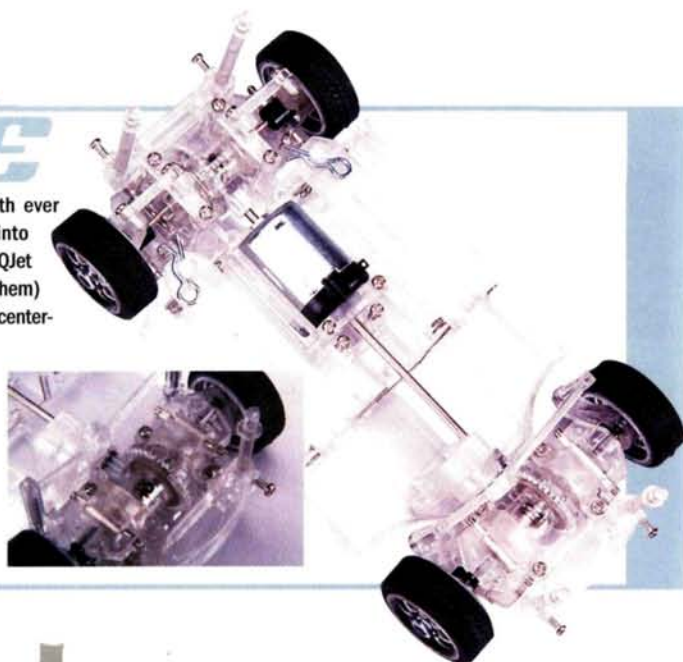


CRYSTAL MISSILE

QJet Mini-Q

THE MICRO SCENE is really heating up with ever more adjustability and performance built into these tiny cars. Want proof? Check out this QJet machine. The Mini-Q is a trick (and transparent) piece of RC micro-engineering. As you can (ahem) clearly see, the Mini-Q has full-time 4WD with front and rear ball differentials, and note that the center-mounted motor doesn't just spin a center drive shaft; it is the center drive shaft! The motor's armature extends across the chassis to reach the front diff, and a pair of AAA batteries on each side of the motor gives 4-cell power. Less obvious is the Mini-Q's fully independent suspension, which is sprung by tiny springs that wrap around the hinge pins. Front caster, camber and toe-in are adjustable, and there are even droop screws on the arms! Option parts will be available, and the $\frac{1}{24}$ -scale car will be sold fully assembled, complete with a clear body and window masks. And, yes, the car will be sold "clear," as shown here!

QJet; distributed by GoldScallop Intl. (416) 609-2468; goldscallop.com.



O.S. Engines .21 VZ-R Turbo

The power brokers at O.S. are about to unleash a hot new on-road mill, and it looks like a screamer. The VZ-R is a race-prepped, rear-exhaust .21 with a two-piece turbo cylinder head designed specifically for O.S.'s new, high-performance TP7 turbo plug. A 20K slide carb throttles the beast, and true ABC construction, increased crankcase webbing and an adjustable universal fuel-inlet nipple make the VZ-R ready to be dropped into your favorite $\frac{1}{8}$ -scale supercar. With a claimed output of 2.5hp, hang on tightly when you light this one up!

O.S.; distributed by Great Planes (800) 682-8948; osengines.com.

Make DuraTrax >> Trax! Intellispeed ESCs



DURATRAX IS COMING ON STRONG in the ESC scene with the Intellispeed lineup, which includes two forward-only models (the fully programmable 8T Pro and the low-buck AutoSport) and three reversing models rated by motor limit—the 16T Mild Mod, 12T Modified and 8T Racing. The 8T Pro is the most feature-packed; it has adjustable frequency, drag brake, current limiter, "Turbo" and "Quick-Start" modes and maximum/minimum brake settings. It also has four factory-set "track" modes in which all the aforementioned adjustable features have been set for $\frac{1}{12}$ on-road, stock touring car, mod touring car, or off-road use. The reversing models all include adjustable reverse-delay and reverse-lockout functions, and even the under-\$30 Auto Sport has high-frequency switching and thermal-overload protection. All include complete installation and setting instructions and capacitors.

DuraTrax; distributed by Great Planes (800) 682-8948; duratrax.com.

Stay Stuck Acer Racing Rad Glu

Anybody can dump CA into a bottle and call it a product, but doggone it if those Acer boys haven't done their homework! The Rad Glu line includes thin, medium and thick varieties, and for those who are interested, Acer happily provides the specific gravity, viscosity and tensile shear strengths for each variety. Check Acer's website to see for yourself.

Acer Racing (310) 472-8090; acerracing.com.



LRP OFFERS CHARGERS IN THE EURO MARKET, but this is the company's first battery-filler-upper to make it stateside. It looks as if it was worth the wait! The Pulsar has a very stylish blue-backlit 2x16-character display to keep you in touch with the status of its various functions, and it can do quite a bit. Charge current can be set from 0.1 amp to 8 amps to charge 1 to 8 cells, and you can select linear or flex-charging modes. The delta-peak value is also adjustable, and an auto-restart system will automatically resume charging if the unit momentarily loses power. The adjustable charge timer can be used as extra security against over-charging.

POWERFUL PULSAR

LRP Pulsar Charger

The Pulsar discharges at a fixed rate of 10 amps with adjustable voltage cut-off, and the "Motor Run-In" feature allows it to deliver 2 to 7.2 volts to power a lathe, break in and test motors, etc. Oh, yeah ... Matt Francis just used a Pulsar to juice up his packs and win the IFMAR 2WD Worlds! Yep; they were definitely fully charged.

LRP; distributed by Team Associated (714) 850-9342; teamassociated.com.



BIG STICK

Fantom Killer Voltz Sanyo HV cells

The Fantom guys are best known for hot motors, but they're players in the battery game, too. Don't look for all kinds of cells, though; Fantom only offers the new Sanyo 3000 high-voltage NiMH cells. "In our opinion, we feel these are the best cells available for any type of racing." Sounds good to me. All Fantom cells are discharged at 30 amps to help weed out weaker cells (so they don't end up in your packs) and are treated with a voltage-enhancing process for maximum punch.

Fantom Racing (616) 649-9583; fantom-motors.com. ■



PIPSQUEAKS

Don't be fooled! Despite their miniscule proportions, Peak's Micro RS4 motors and battery packs intensify the fun factor by producing awe inspiring speeds and extended run times.



WIND

Peak's Wind is an economical way to increase the speed of your Micro RS4. A 45-turn armature is housed between dual low friction bushings and gives the Micro extra kick. Three capacitors and a plug are standard.



TURBO

Coreless Micro Modified

Due to its coreless design, Peak's Turbo Micro Modified produces 2-3 times the power of the original kit motor while lasting up to 10 times longer! Precision made in Switzerland, the Turbo is the ultimate motor for your Micro RS4.

CHUBBY

OVERSIZED MICRO MOTOR

This oversized micro motor produces enough power to propel a Micro RS4 to speeds similar to those of 1/12 scale cars! The kit comes with all the necessary hardware (motor plate, plastic spacers, screws, and instructions) to make installing the Chubby possible. The Chubby comes with capacitors, plug, and pumps out up to 30,000 RPM!



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readers' rides

YOUR BEST BUILDS



DAN BAKER O'FALLON, MO HPI RS4

Check out this HPI RS4 outfitted with Pro-Line tires and RPM Psyclone wheels. Dan did a nice job with the diamond-plate surface and purty blue backdrop, but I guess he spent all his cash on the layout because he only affixed a 1-cent stamp to the envelope when he mailed in this picture, which arrived "postage due."

BENITO MARESCA, TORRANCE, CA TAMIYA SONIC FIGHTER

While Benito was searching for his first RC car, he discovered this Sonic Fighter on eBay. He kept the stock motor and speed control and installed a Hitec radio. After a little fixing up, he says that his Tamiya classic runs like new.



RANDY BAIOR, PEORIA, IL TEAM ASSOCIATED B3

Randy's sprinter started out as a B3, but after he installed an RD Enterprises conversion, his buggy is now a race-ready oval car. Randy's ride has a Trinity 10x2 D3.5 motor and Novak speed controller, and it runs on BSR foams.



MANUEL ALONSO, CARACAS, VENEZUELA HPI RS4 RALLY

This is Manuel's Jekyll-and-Hyde project—a split-personality HPI RS4 Rally that he uses for both on- and off-road racing. The Peugeot does it in the dirt with a Reedy rebuildable stock motor, HPI wheels, firm inserts and 26mm standard-compound rally tires. When it's time to take to the tar, Manuel switches to a 14T motor, HPI Advance tires and the VW Beetle Cup racer body.



**READERS'
RIDE
OF THE
MONTH**

Manuel's dual-purpose chassis is a perfect example of what can be accomplished with a little planning and effort, and he certainly stretches his hobby dollar. Keeping the paintwork simple adds to the car's racy look in both configurations.

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Send a sharp, uncluttered, well-exposed color photo of your vehicle (no Polaroids) and a brief description to "Readers' Rides," RC Car Action, 100 East Ridge, Ridgefield, CT 06877-4606 USA. If we publish your photo, you'll receive a free, one-year subscription to RC Car Action and will be eligible to win the "Reader's Ride of the Year Contest." Write your address and phone number on your letter and on the back of every photo you send. Good luck!

**SHAWN DEDEUS, NEW
BEDFORD, MA
LOSI TRIPLE-XT**

Sometimes it's hard to decide on a color scheme, so when faced with the choice of lightning, flames or checkers, Shawn chose all three.

His good-looking stadium truck is equipped with a Novak speed control, MIP CVDs, an Airtronics M8 radio and Lunsford turnbuckles.



**JESSE LOBACK, BUENA PARK, CA
BOLINK NITRO FUNNY CAR**

The huge tuned pipe was a pretty good clue, but if you had any doubt, Jesse says that this funny car "is no slowpoke." The Bolink dragster has Airtronics radio gear and an O.S. engine, and it races at the Rialto Air Park. I like the see-through-flames design.



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#379 11 Dbl.	#390 12 Sgl.	#341 10 Trp.
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	#392 10 Sgl.	#343 8 Trp.

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**DAVID MISENHEIMER,
SAN RAFAEL, CA
TRAXXAS NITRO
BUGGY**

How cool is this? They have real tabletops at this track! This is David's Traxxas Nitro Buggy that he affectionately refers to as "Old Reliable." The buggy has Futaba radio gear, an MIP tuned pipe, Pro-Line rims and tires and a Trinity receiver pack.

**BRYAN DUGGAN, MIDDLESEX, NJ
TEAM ASSOCIATED
RC10GT**

After seeing Associated's Team-Built GT in the pages of Radio Control Car Action, Bryan decided it was time to get back into RC (dude, why'd you leave?). His stadium truck, pictured here at American Raceway in Englishtown, NJ, is outfitted with an Airtronics radio with Hitec servos, and the RC10 is powered by an O.S. .12 CV-R. Bryan painted the Dynamite Triton shell body without the aid of an airbrush, but he says he'll purchase one soon.



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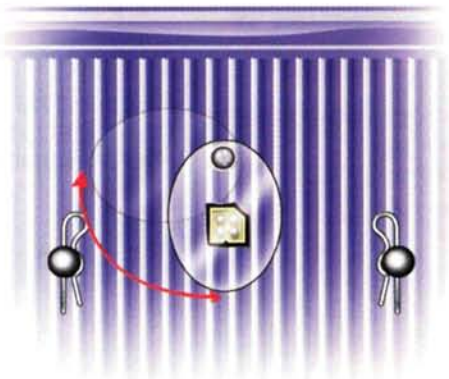
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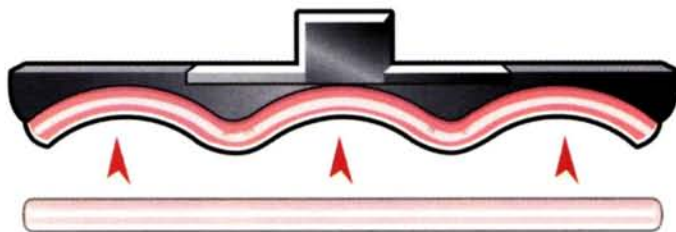


HINTS, TRICKS, TIPS AND IDEAS FROM READERS LIKE YOU

**EZ-START PLUG COVER**

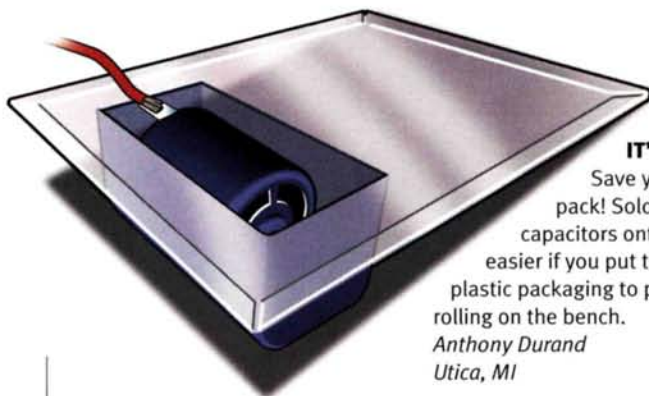
To prevent your Traxxas vehicle's onboard EZ-Start plug from getting fouled, use a piece of scrap Lexan to make a cover. Cut out an oval piece of Lexan that is just a bit larger than the plug's access hole. Fasten the Lexan onto the body using a machine screw and a locknut with a washer between each part. Now your plug is protected, and you can just slide the Lexan cover to one side when you need to get to it.

*Mathew Ross
Des Moines, IA*

**BETTER BITE FOR BATTERIES**

Depending on the type of batteries you use in a Double-X4, the cells might not be held in firmly by the stock battery brace. For a tighter fit, slit lengths of fuel tubing and use them to pad the ribs of the battery hold-downs.

*Jonathan Burnett
Lumberton, NC*

**IT ISN'T JUNK;
IT'S A JIG**

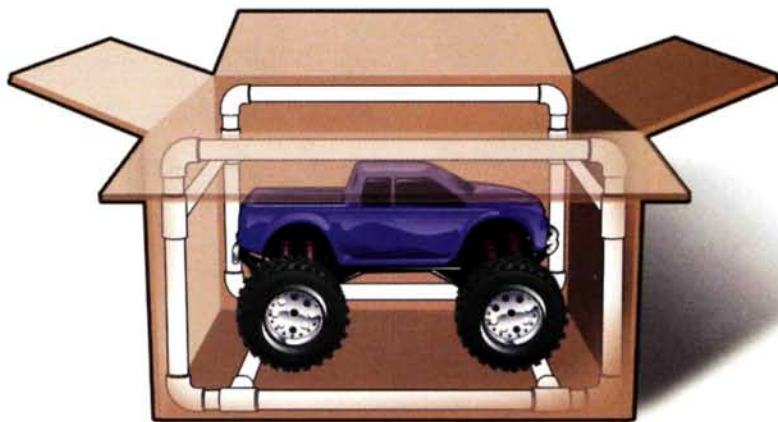
Save your motor's blister pack! Soldering wires and capacitors onto a motor is a lot easier if you put the motor into the plastic packaging to prevent it from rolling on the bench.

*Anthony Durand
Utica, MI*

**WINDSHIELD WIPERS FOR THE ROAD?**

This is more of a "pit trick" than a "Pit Tip." Before a muddy race, cut a "windshield-wiper pattern" from a decal sheet or a piece of vinyl and stick it onto your truck's windshield. After the race, peel off the sticker; your car or truck will look as if it had its windshield wipers turned on! Park the truck on your bench and wait for the double takes.

*Daniel Mathern
Rochester, NY*

**BETTER BOX**

To better protect your RC gear when you travel by airplane, use PVC tubes to brace a heavy-duty box, and don't skimp on the packing material!

*Alex Via
Columbus, OH*

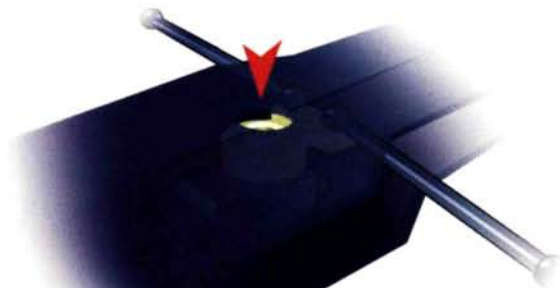
WIN AN OFNA YO-YO, OFNA OB4 AND RC CAR ACTION SUBSCRIPTION! SEE NEXT PAGE FOR DETAILS.



COMFORTABLE TRANSMITTER GRIP

Wrap a short length of "Corban" (an elastic bandage material) around your transmitter's grip for a more comfortable feel. You can find it at your local pharmacy.

Adrian Chavez
Fort Sill, OK



EASY-ACCESS SERVO-SAVER

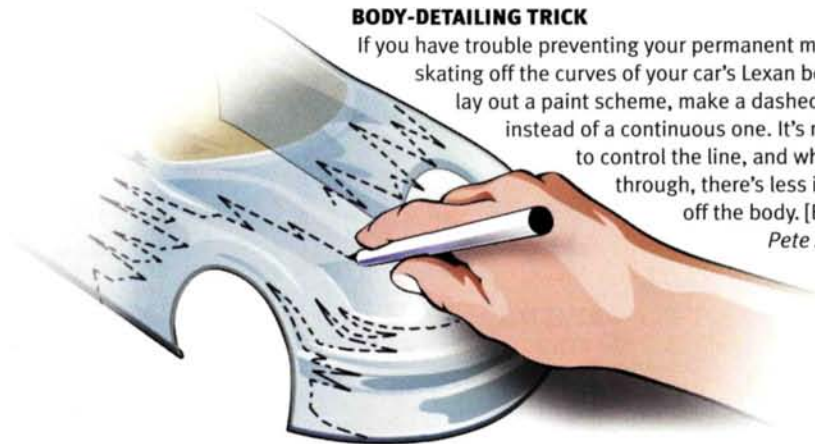
For easier access to the screw that fastens the servo-saver to the steering servo on your Tamiya TL-01, drill an access hole for a screwdriver in the bottom of the chassis.

Mark Baldwin
Albany, NY

BODY-DETAILING TRICK

If you have trouble preventing your permanent marker from skating off the curves of your car's Lexan body as you lay out a paint scheme, make a dashed line instead of a continuous one. It's much easier to control the line, and when you're through, there's less ink to clean off the body. [Email]

Pete Zoria



CA SHELF-LIFE EXTENDER

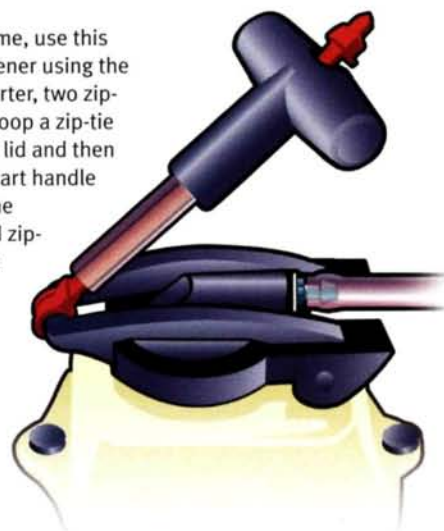
The next time you stock up on CA, store the extra bottles in the freezer to increase their shelf life. Have a Popsicle while you're in there.

Chris Valley
Alexandria, VA

FASTER FILL-UPS

To improve your pit-stop time, use this easy-to-make fuel-tank opener using the handle of a broken pull-starter, two zip-ties and fuel tubing. First, loop a zip-tie through the lip on the tank lid and then slide the tubing and pull-starter handle onto its "tail." Then take the ratchet block of the second zip-tie and slide it onto the tail of the first zip-tie to hold the assembly together.

Jake Debus
Tinley Park, IL



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troubleshooting
YOU'VE GOT PROBLEMS? WE'VE GOT FIXES.**SLIP-SLIDING AWAY**

I have a Traxxas Nitro Sport with a TRX .15 engine, a 360 Stinger pipe and an EZ-Start system. When I drive my truck, the one-way bearing in the EZ-Start system slips, and the engine fails to turn over. Then I have to remove the EZ-Start system to clean the bearing, only to have to repeat the process on the very next run. I've also replaced the bearing several times, but the problem won't go away. Can I do anything to fix this?

Jeff Pearce
Huntington Park, CA



The EZ-Start is simple to remove from an engine; only three screws hold it in place.

It sounds as if your engine is set overly rich, and that is why the one-way bearing is being flooded with fuel. If you slightly lean out the carb's high-speed needle, that will probably help reduce the fuel buildup, but don't lean it out too much, or you'll risk overheating the engine.

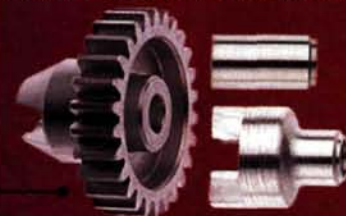
You can also make a small drainage hole in the EZ-Start housing so that unburned fuel will leak out instead of accumulating around the bearing. To do this, remove the starting system from the engine, take the gears out of the EZ-Start, and drill a small hole in the bottom of the gear case. Use a piece of fuel tubing as a drainage tube; stick one end of the tubing into the hole and run the other end out below the tuned pipe. With this drainage tube, you'll also be able to spray solvent up into the EZ-Start housing to clean the bearing without disassembling it. You could also use this mod on a pull-start-equipped Traxxas vehicle by drilling a small drainage hole in the bottom of the pull-start mechanism case.



Once the EZ-Start is off the engine, remove the gears and drill a hole in the bottom of the case so excess fuel can drain out.

REAL PERFORMANCE PRODUCTS!**Traxxas Lightened Spur And Double-Disc™ Slipper Kits**

RRP's NEW line of Lightened Spur and Double-Disc Slipper Kits for Traxxas Nitro and T/E-Maxx trucks are designed to improve performance and increase reliability. This combo incorporates a machined steel or Super-Tough plastic spur, a Vented Aluminum Clutch-Plate/Gear Adaptor (small or large), 2 Slipper Pads and 2 Plates to deliver the adjustability you need and the increased performance that you demand. **Complete Slipper Kits** are available in the following sizes: RRP 8166 Slipper Kit with 66T Super-Tough plastic spur (Stock Size) for E-Maxx RRP 8172 Slipper Kit with 72T Super-Tough plastic spur for Traxxas Nitro RRP 8465 Slipper Kit with 65T Steel Spur for Traxxas Nitro RRP 8472 Slipper Kit with 72T Steel Spur (Stock Size) for T-Maxx. Spurs, Clutch-Plate/Gear Adaptor and Slipper Pads also sold separately.

T-Maxx Forward ONLY Hardened Gear Kit

This kit contains a 26T hardened aluminum output gear, a forward drive hub adaptor and spacer. RRP 8585

Nitro and T/E-Maxx Accessory Spurs

A wide range of spurs fit our Double-Disc Slipper Kits. Choose from machined Super-Tough plastic spurs in 66, 68, 70, 72 and 76T sizes, RRP 82XX, or CNC machined steel spurs available in 65, 72 and 76T sizes, RRP 83XX. Small Clutch Plate/Gear Adaptor fits 65 thru 70T spurs. Large Clutch Plate/Gear Adaptor fits 72 thru 76T spurs.

Traxxas Nitro Hardened Steel Clutchbells

CNC Machined from solid steel these bells are built to last. They take the 5x11 bearing (NOT included). Available in 19T, RRP 8119, 20T RRP 8120, 21T RRP 8121 and 23T RRP 8123.

T-Maxx Hardened Forward Primary Gear

Machined from solid aluminum and hard coated. A direct replacement for the stock gear. RRP 8528

48P Absolute Series Pinions

Super hard, lightened and cut with unmatched precision. Great with any spur, but with an Absolute spur, even on-off noise is gone! Available in 48P in 16T thru 28T sizes. RRP 1416 - RRP 1428.

48P / 64P SuperLite Aluminum Pinions

They're lightened, hard coated and precision cut. Available in 48P in 16T thru 28T, and 64P in 24T thru 38T. RRP 30XX (48P) and RRP 31XX (64P). Only \$5.25

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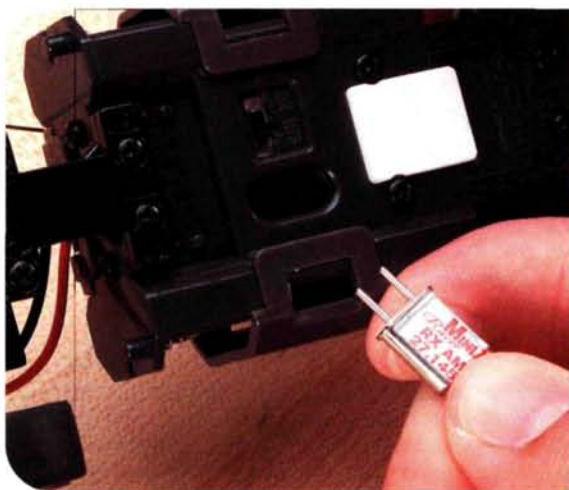
These precision cut gears have an extremely hard coating that makes them really last. Available in 12T thru 35T. RRP 1012 - RRP 1035

Make No Compromises.

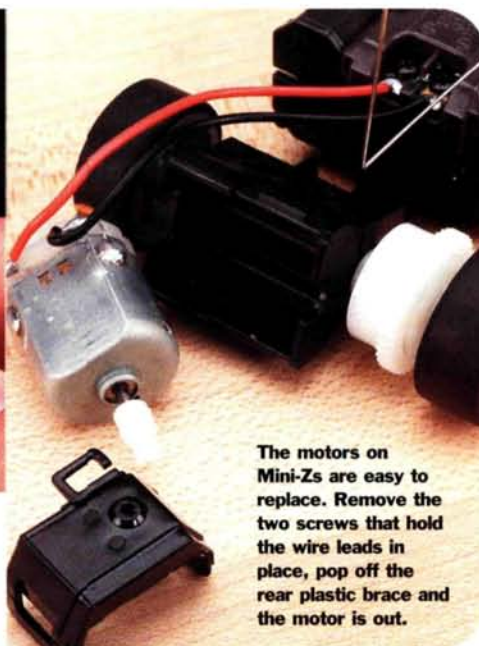
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TWITCHY MINI-Z, PART 2

Please help; I have a twitchy Kyosho Mini-Z. The steering twitches whether the car is moving or not. I have installed new batteries in the car and transmitter, and I also checked all the wires for loose connections; but everything checks out. Do you have any advice? [email] Brian



When glitches strike, the first thing to check is the receiver crystal.



The motors on Mini-Zs are easy to replace. Remove the two screws that hold the wire leads in place, pop off the rear plastic brace and the motor is out.

You did a good job of starting the troubleshooting process by installing new batteries in the car and transmitter and checking all the wires for loose connections and fraying. You can continue the process with a system of elimination; here are some other things to look at. Try a different set of frequency crystals; the crystal installed in the car is delicate and might have been damaged by the shock from a crash. And for the same reason, if you've ever

dropped the transmitter, you might also try using a different radio. Another factor to consider is that a worn-out or damaged motor can cause radio interference even when it isn't running, so the next logical step is to replace the motor. Rather than shelling out money to buy new components, first ask your local hobby shop to plug the new parts into your car so that you can test your RC system before you buy. If you do that, you'll only have to buy the part that you need.

If your glitching persists even after you've completed these checks, there's a good chance that your car's ESC/receiver has been damaged and should be replaced. Kyosho offers an RC unit set (item no. MZ-8) that contains an ESC/receiver and a steering servo.

NEW T-Maxx Steel Diff Gear Set



T-Maxx / E-Maxx differential gear set, includes: 1 beveled pinion gear, 1 beveled spur gear, 4 re-usable stainless steel phillips head screws, 1 tube Associated Black Grease, and a shim kit for spider gears with 10 .003" shims. 2 sets needed per truck. RRP 8590

NEW T-Maxx Aluminum High Performance Brake Kit



New, lightweight aluminum high performance brake kit, includes bigger, more aggressive brake pads and steel backing plates. One piece vented rotor minimizes side-to-side wobble. RRP 8560

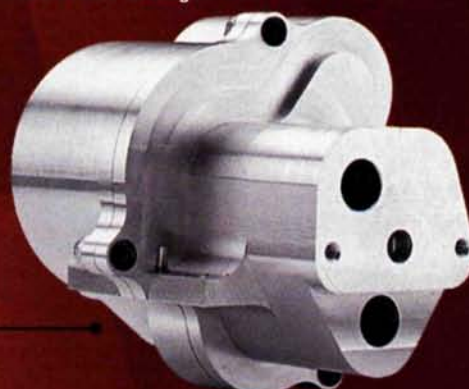
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T-Maxx Vented Flywheels



Aluminum vented flywheels move air over clutch bell, improving performance and cooling. RRP 8551 Blue, RRP 8550 Natural Silver

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Precision CNC machined from aircraft grade billet aluminum this Forward ONLY Racing Gearbox will give your T-Maxx a serious competitive edge. RRP 8595

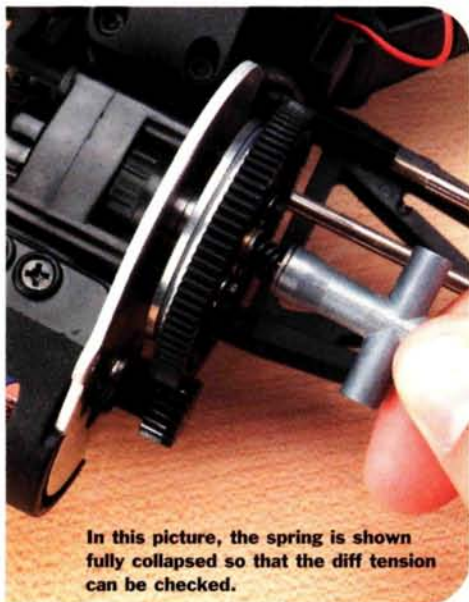
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DUDE, IT'S YOUR DIFF

I have a problem with my new DuraTrax Evader. I think it's a faulty slipper clutch because every time I stab the throttle there is a metal-to-metal grinding sound and there is a burning smell. I can't see any external wear on the slipper-clutch mechanism. What's causing this to happen? On a completely different topic: could I install a 2-speed tranny in my electric Evader? [email]

Matthew Tiessen



In this picture, the spring is shown fully collapsed so that the diff tension can be checked.

Matthew, it sounds as if you've fried your truck's differential. When they're new, ball diffs have to be broken in so that they and the diff rings will seat inside the diff housing properly. This is done by running the vehicle for a couple of minutes and then tightening the diff nut to the point at which the diff can't slip. If left unchecked, the diff may be set too loose, and that can cause the diff balls and diff rings to overheat and possibly melt the diff gear.

If the diff feels notchy or gritty when you rotate the rear wheels, you'll need to remove the tranny and replace the damaged diff components. Order the replacement parts from your hobby dealer, and rebuild the diff according to the instructions.

A good initial setting for any ball diff is to fully tighten the diff screw, then loosen it $\frac{1}{8}$ turn. To check the setting, tighten the slipper clutch nut all the way so that its spring is fully collapsed. Next, hold the rear wheels and try to turn the spur gear with your thumb; it should be very difficult to turn. If you can turn the gear with anything less than extreme effort, you should tighten the diff screw further.

As far as I know, there are no 2-speed tranny options available for the Evader. If you want more speed, you could try a modified motor with a lower wind, but the Evader's Sprint ESC is only rated for motors of 20 turns or more, and the trucks included Photon Speed Motor is 20 turns. Most ESC's are rated very conservatively, and you probably could safely go down to a 17-turn, but you'll void the ESC's warranty.

Be sure to read the specs on your truck's ESC, and don't install a motor with fewer winds than recommended by the truck's manufacturer. You'll need to re-gear your truck for the modified mill, and you'll also need a 48-pitch pinion gear that has three fewer teeth than the stock pinion gear.

Installing a modified motor with a lower turn count than what you currently use will help increase the speed. Be sure to choose a motor with a turn count that your ESC can handle.



RS4 Nitro Aluminum Brake Kit



Lightweight aluminum, variable braking system. RRP 1575

RS4 Nitro Vented Flywheel



Aluminum vented flywheels move air over clutch bell, improving performance and cooling. RRP 1570 RRP 1571 Pull Start

Stealth Sedan Spurs



These precision machined spur gears are super quiet. They're available in 48P in 60T thru 96T sizes, and fit any HPI electric car or truck. RRP 1860 thru RRP 1896.

RS4 Nitro Small Aluminum Drive Pulleys



Hardened drive pulleys, sold in pairs. RRP 1538

RS4 Top Shaft Pulley



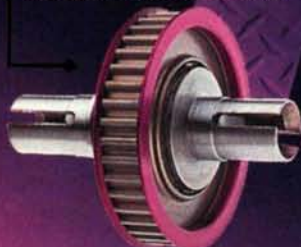
One piece pulley and shaft are precision cut and hard anodized. Purple anodized side flanges are pressed on. RRP 1527

RS4 / Pro / Pro2 / Nitro Aluminum Outdrives



40% lighter than stock ball diff outdrives. RRP 1585

RS4 Complete Ball Diff Units



Hardened steel outdrives, ground and polished thrust washers, 2 5x8mm ball bearings, and aluminum pulley. RRP 1590 Electric RRP 1595 Nitro

RS4 Diff Pulleys



Precision machined, hard anodized aluminum diff pulleys. RRP 1539 nitro sedans RRP 1528 electric sedans

RS4 Nitro Lightened Gear Adapter



This lightened gear adapter includes a machined nylon spur that's tougher than the stock gear and will last longer. RRP 1535

www.robinsonracing.com

RS4 Nitro 32 Pitch Conversion Kit is available. RRP 1536

PESKY WHEEL NUTS

I have a Traxxas Rustler, and everything worked well until I installed some new RPM Clawz wheels. Now, the front wheel nuts always loosen and are thrown off the axles. I've replaced the nuts several times, but that hasn't solved the problem. This never happened with the stock wheels. The new wheels look cool; I don't want to change back to the old ones. What should I do?

Michael Paresky
Waylan, MA



The Teflon spacer (on top of the bushing) allows the wheel and bushing to rotate without loosening the wheel nut.

It sounds as if you lost the Teflon spacers that slide over the axles in front of and behind the wheel bushings. They are very thin and are easily lost when you remove the front wheels from the axles. Pick up a set of Traxxas 5x11x4mm Teflon washers (item no. 1685) and install two on each front axle—one in front of and one behind the wheel bushings. Also replace the locknuts; their nylon inserts may be worn out, which causes them to loosen easily.

If you've repeatedly taken the wheel nuts off your truck, the nylon insert can be worn out. That allows the nut to loosen.



TOOLBOX

If you don't have the right tool for the job, installing ball cups onto turnbuckles can be a pain. These handy ball-cup drivers from DuraTrax have been designed especially for this. They are made of machined aluminum and are color coded—purple-anodized for Losi ball cups and red-anodized for Associated ball cups. Just slide the ball cup inside the driver and turn it onto the turnbuckle. At less than 3 inches long, its compact size won't take up much room in your pit box.



Ball-cup driver
item nos. 1130 (Associated), 1135 (Losi);
\$8.99 each

DuraTrax; distributed by Great Planes
Model Distributors (800) 682-8948;
duratrax.com.

NEED HELP?

Send your Troubleshooting questions and comments to George M. Gonzalez, georgeg@airage.com.

RC10-GT Steel Combo



Precision machined from solid steel, then hardened, this 65T spur and 15T pinion combo will last and last. The extra-hardened clutch bell fits ALL Associated and MIP shoes. RRP 2365

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Hardened Steel Idler Gear



Cut from solid steel stock, this gear is lightened and hardened for super quiet precision and extra long life. Jammin' tranny grease is included. RRP 2213 RC10-GT, RRP 7505 Ultima GP-R

Associated Titanium Stealth Top Shaft



CNC Machined from solid titanium, this super hard, super light top shaft will fit any Stealth transmission. RRP 1512.

Hardened Diff Gear



Hard anodized, precision CNC machined aluminum diff gear. RRP 1513 RC10-GT RRP 7500 Ultima GP/EP-R

Blue Lightened Slipper Kit



The rear plate is hard anodized and the front plate is color treated. The front plate holds the pad forcing it to slip on the rear plate. When pad wears, just flip it over for a new surface. RRP 1515 Associated, RRP 7515 Kyosho Ultima

Aluminum Outdrives



40% lighter than stock ball diff outdrives. RRP 1475 TC3, RRP 1502 B3/T3

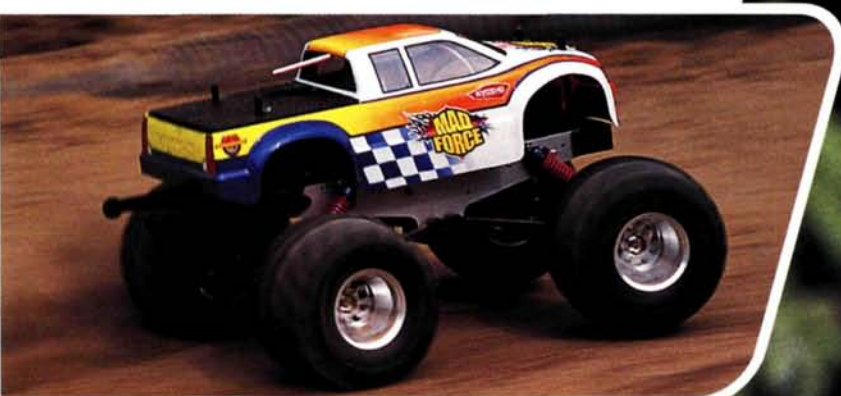
TC3 Ultra 48 Pitch Spurs



Precision machined from heat-resistant plastic, these spurs mesh flawlessly with our pinions. Available in even numbers from 70T thru 80T, RRP 1670 RRP 1680.

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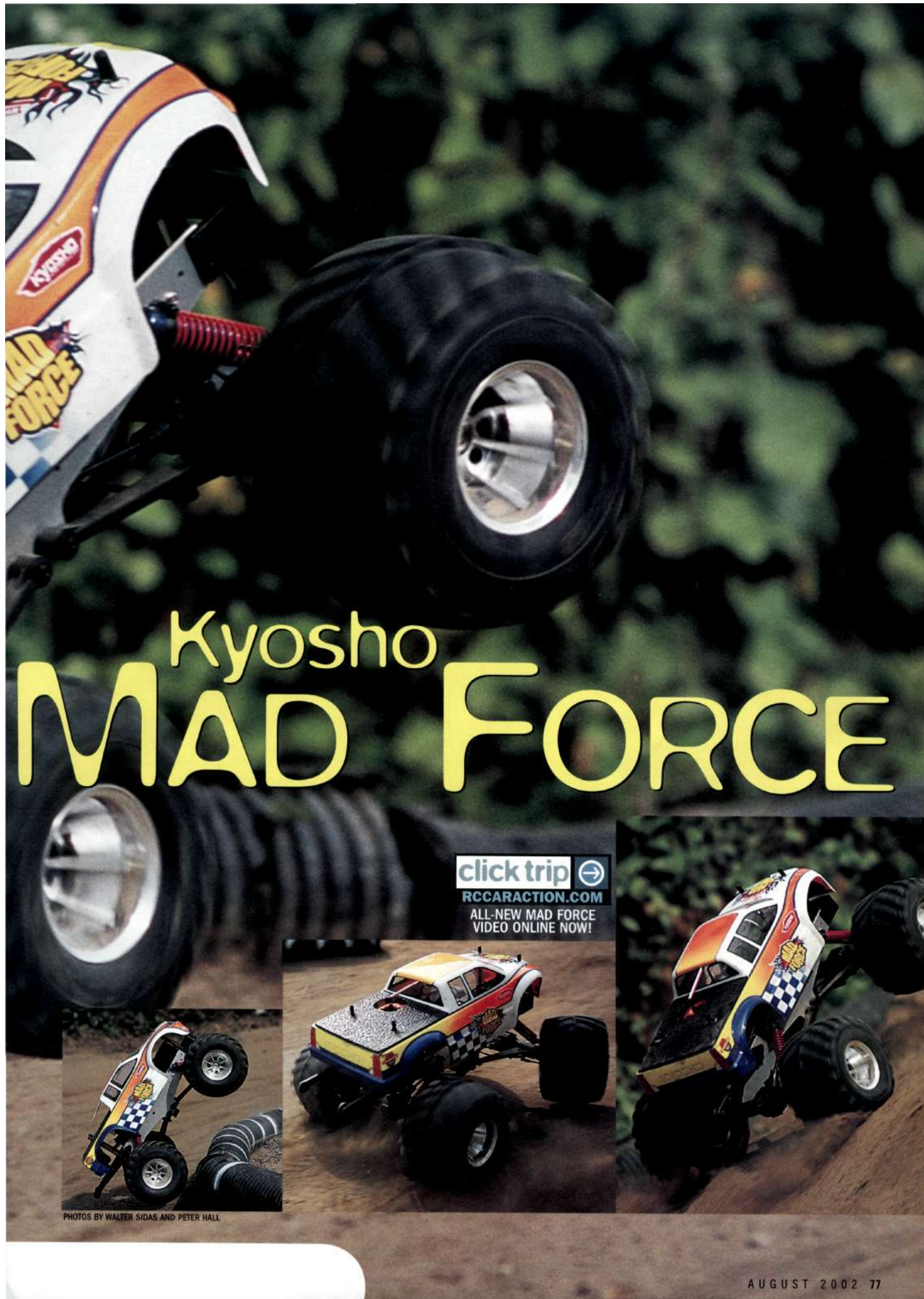


by Peter Vieira


There are basically two ways to build a nitro-powered 4WD monster truck. You can use the standard, modified $\frac{1}{8}$ -scale-buggy formula, or you can clone a T-Maxx. Kyosho could have chosen either formula for its latest monster machine but instead went for something entirely new. As a follow-up to the small-block MegaForce and spiritual successor to the protean Nitro USA-1, Kyosho has created a bold vision of nitro monster truck performance that owes nothing to past or current designs. The Mad Force is a straight-axle, 3-speed, .21-powered machine that certainly is something different, but is it something different that works?



3 speeds
2-link suspension
1 of a kind



Kyosho MAD FORCE

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PHOTOS BY WALTER SIDAS AND PETER HALL

MAD FEATURES

1 TORSION-LINK SUSPENSION. See the "It Takes Two" sidebar for details on the Mad Force's unique suspension setup.

2 THREE-SPEED, CHAIN-DRIVE TRANNY. The Mad Force has a substantial stack of gears under its hood. The 3-speed shifts via centrifugally activated drive dogs and spins a transfer gear via a steel chain. From there, steel dogbones reach out to the axles. The small top sprocket is steel, but the larger, lower sprocket that spins the drive shafts is (yikes) plastic. Hey, if it holds up, fine, but man—plastic?

SPECIFICATIONS

MODEL Mad Force

MANUFACTURER Kyosho

DISTRIBUTED BY Great Planes

SCALE 1/8

PRICE \$480

Price varies with dealers

DIMENSIONS

Wheelbase 12.5 in. (318mm)

Width 16.25 in. (413mm)

WEIGHT

Total, as tested 153 oz. (4,332g)

CHASSIS

Type Ladder-style

Material 3mm aluminum plate

DRIVE TRAIN

Type 3-speed chain-drive with solid axles.

Primary 14-, 17-, 20T clutch bell/46-, 43-, 40T spur gears

Transmission ratio 7.8:1

Final drive ratios; 25.7:1 (1st gear), 19.7 (2nd), 15.6 (3rd)

Differentials 4-gear bevel with O-ring and gasket-sealed plastic housing

Bearing type Metal-shielded ball bearings

SUSPENSION

Type Torsion-link trailing arm with solid axle

Shocks Aluminum-body, oil-filled with volume-compensation bladder

WHEELS

Type One-piece plastic, chrome finish

Dimensions 3x3.9 in. (76x100mm)

TIRES

Type Kyosho chevron tread

ENGINE AND ACCESSORIES

Engine Kyosho GS21R pull-start

Carburetor 2-needle slide

Pipe 3-piece, cast-aluminum tuned pipe

Manifold Bolt-on, cast-aluminum

Fuel tank 125cc with internal stone filter

3 NITRO USA-1 TIRES. The Mad Force's rubber is the only part to come from the USA-1. Bravo, we say; the USA-1's tires have long been popular with monster fans for their good grip and light weight. The tires are mounted on USA-1-style wheels; they are slightly different from the old USA-1 hoops but have the same chrome-plated good looks.

4 GS21R PULL-START ENGINE. It takes only a tug or two to fire up the Mad Force's .21 engine. This powerplant, coupled with the truck's low gearing, light weight and slick-shifting tranny, delivers a Lennox Lewis-size wallop and a best-in-class top speed of 43mph (other .21 monsters we've tested topped out at 30 to 35mph). The GS21R is fully tunable thanks to its 2-needle carb, and the piston and sleeve should be durable, thanks to their ABC construction.

5 LADDER-FRAME CHASSIS. The Mad Force's chassis is very simple: just a couple of 3mm aluminum side plates joined by a shelf that holds the engine, transmission and fuel tank.

The thick vertical plates give the chassis tank-like ruggedness.

6 WHEELIE BAR. Nothing says "I do wheelies" like a wheelie bar, and rest assured, the Mad Force can do wheelstands all day long. Lofting the Mad Force's nose is as easy as pulling the trigger. We wish the wheelie bar had a cooler look, but as a purely functional part, it gets the job done.

7 SUSPENSION-MOUNTED BELLCRANK STEERING. The Mad Force gets a little funky here. The steering servo is mounted at the front of the chassis and reaches way back to the chassis' center via a long steel linkage to turn a servo-saver-equipped bellcrank. From there, another link reaches back to the front axle, passing the steering servo, to turn a pair of bellcranks and, in turn, steer the front wheels via tie rods. It's more complex than it needs to be (mounting the servo on the axle would be easier and neater), but the stock setup works well, with no bump-steer despite the servo's being fixed on the chassis.

the inferno connection

The Mad Force owes little to Kyosho's first .21 truck, the Nitro USA-1, but it owes a lot to the Inferno series of buggies. Here's some cred for ya: Infernos have won the past five IFMAR 1/8-Scale Off-Road World Championships!

These are the buggy parts that earned guest-star roles in Kyosho's monster show:

➔ **ALUMINUM SHOCKS.** You know these dampers are tough. Aluminum bodies, bottom-loaded seals and volume-compensation bladders make them smooth operators. And they're blue—always a welcome feature.

➔ **MP-6 BATTERY BOX.** A hinged lid gives easy access to the receiver and its battery, and the on/off switch is easy to find. There's room for 4 AA alkalines, a 2x3 pack, or a flat pack.

➔ **MP 7.5 FUEL TANK.** An internal stone filter prevents any fuel-borne crud from reaching the carb, and the top-mounted pressure fitting helps keep fuel out of the pressure line as it reduces foaming. If you get a little sloppy with the fuel bottle, the tank's spillway will direct any overflow out through the bottom of the truck.

➔ **MP 7.5 DIFFERENTIALS.** On the plus side, the diffs include O-ring and gasket seals to facilitate tuning with silicone diff oil, and Kyosho assembles the diffs for you (and even installs them in the axle tubes). On the minus side, Kyosho doesn't supply silicone goo to fill the diffs, and there are only two spider gears inside, even though the diff is ready to accept four.

➔ **MP 7.5 STEERING KNUCKLES.** These cast knuckles aren't really anything special, but we're happy to see them because it means any trick aftermarket knuckle for the Inferno MP 7.5 will fit.

➔ **MP 7.5 DUAL-DISC BRAKES.** The dual discs aren't used for independent front and rear braking, since the Mad Force has no center diff. The setup simply generates maximum stopping power; monster-size tires have a lot of leverage, so heavy-duty stoppers are a must. Steel pads and rotors get the job done.

>>



It Takes Two Inside the Mad Force's 2-link Suspension

A core problem any straight-axle truck designer must face is axle articulation. Naturally, the axle has to be able to swing up and down to absorb bumps, but that isn't difficult to do; all you need is a swing arm, as used on ATVs. But in addition to moving up and down, the straight axle must be able to twist around the center point between the wheel hubs so that the suspension can hold the chassis level over uneven terrain. All it takes to achieve this are ball linkages, but then it becomes impossible to keep the axle centered under the chassis; it's free to wander left and right. To solve this problem, straight-axle RC trucks have evolved "4-link" trailing-arm suspensions wherein 2 links (one above the axle, the other below) on each side of the axle provide suspension articulation, and a pair of leaf springs (as seen on Tamiya's Juggernaut 2), or the triangulation of the upper links (as seen on Tamiya's TXT-1) keep the axle centered beneath the chassis. Both concepts work, but leaf springs offer limited travel and still allow some side-to-side float. Triangulated upper links work better, but they place a lot of strain on the linkage-attachment points and do nothing to counter chassis roll, so sway-bars must be fitted.

Kyosho's straight-axle solution is entirely different. Each axle is attached to the chassis by only two broad, flat links. The links swing up and down freely in response to bumps, like a 4-link system, and their flat shape naturally resists side-to-side motion. If the axle must twist to keep the wheels in touch with the ground (one wheel rises, the other falls), the links flex torsionally between the chassis and axle to allow the movement. Unlike a 4-link setup that has no inherent spring action, the flat torsion links want to be "flat" and act as a natural anti-roll system. The Mad Force setup works, and it's far simpler than other straight-axle designs; that means less stuff to break and fewer parts to collect mud and dirt.

The Mad Force's broad, flat trailing arms are their own swaybars. Cast steering knuckles pirated from the Inferno parts bin are used on all four corners and make rear toe fully adjustable.



Kyosho builds the Mad Force's axle assemblies and 3-speed tranny for you. Thanks!

DRIVE TIME

Tug, tug, braaap ... that's how easy it is to start the Mad Force's GS21R engine. After a dutiful break-in and the requisite needle tweaks, we tore into the Mad Force like a Slim Jim. The key word here is *wheelies*. Only the late, great Doug Domokos could out-wheelie the Mad Force. Just grab the trigger, and the front wheels are airborne. The wheelie bar really

gets a workout and quickly shows wear; its thin plastic wheels are rapidly chewed up on pavement, and on dirt, the wheels act more like plow discs, but they do a good job of preventing the truck from flipping. (Our "4x4" guy, Kevin Hetmanski, plans to mount mini-chevron tires on a trick custom wheelie bar; can't wait for that). OK, back to the action.

With its front wheels back on the ground, the temptation was great to "see what it can do." With a slow roll-on to keep the front end planted, we brought the leaned-out Mad Force up to maximum

warp factor. If you think it must be awesome to hear a 3-speed nitro machine shift *twice* on the way to full toot, you're right; it is awesome. And you're also right if you think the Mad Force is fast, because it is. It's the Lamborghini of monster trucks, with a top speed of 43mph (confirmed by our better-than-the-cops-use radar gun), and it's surprisingly stable at speed. Most monsters get a serious case of the wugga-wuggas during speed runs, but the Mad Force holds a line very well; corrections don't cause a tough-to-break, side-to-side oscillation cycle as many other big trucks are prone to develop.

At slower speeds and in its intended milieu of dirt, grass, rocks and roots, the Mad Force proved it had its climbing and crawling chops down. It doesn't have quite the same massive single-wheel articulation as a 4-link truck or a long-travel, independent-suspension machine like the T-Maxx, but it has more than enough for all but the gnarliest rock piles (and much more travel than the prototype Mad Force we drove and dubbed "Monster X" for the June 2002 issue of *RC Nitro*).

What the Mad Force gives up in trials-style climbing, it more than makes up for with its highly competent handling. It's great that the Mad Force can tear up a drag strip, but we're particularly impressed by the big truck's drivability. We've never seen a straight-axle truck (not to mention a nitro straight-axle truck) that could be pushed so hard and so deep into a turn without flipping. Now, don't get us wrong; it's no touring car, and it will flip if you push it hard enough. But those limits are higher (and reached more predictably) with the Mad Force than with other monster trucks we've tested.

HOW GOOD IS IT?

Kyosho scores big in the big-truck category with the Mad Force. Big-block power, a 3-speed tranny, an attractive body and wheel package, a healthy infusion of Inferno durability, and scorching straight-line performance combine with track-friendly handling to make this a monster like no other. And come to think of it, it's durable, too; we never did toast that plastic sprocket. The Mad Force isn't just something different, it's something different that works. The monster-truck world just got a little more interesting! ■



The bellcrank steering system is more complex than it needs to be, but it works well. Don't be surprised if the aftermarket guys cook up an axle-tube-mounted steering-servo system.

SOURCE GUIDE

KYOSHO distributed by Great Planes Model Distributors (800) 682-8948; kyosho.com.



by Peter Vieira

Team Losi did it first. Before the Graphite Plus and the Team Kinwald versions of the Double-XT truck and Double-X buggy appeared in 1998, no off-road competition kits included all the factory-upgrade parts, and no one had ever seen a driver-endorsed factory-racer replica. Now it seems nearly all manufacturers offer some type of all-the-goodies version of their best competition kits—complete with colored hardware and pretty parts to complement the go-fast stuff. And of course, Losi is still in the game, but the newest “works” machine to come out of Chino isn’t a candy-colored car. This time around, Losi’s nitro wonderkind Adam Drake gets the honor of having a repli-racer in his name, and his Triple-XNT is a serious-looking piece of hard-anodized hardware. There isn’t a single red, blue, or purple part to be found; instead, all the aluminum parts have an I-mean-business, hard-ano coating. All of Losi’s molded-graphite parts are in evidence, too, plus a bunch of other option parts. So you know it’s gonna be good. The question is, how good?

Team Losi Triple

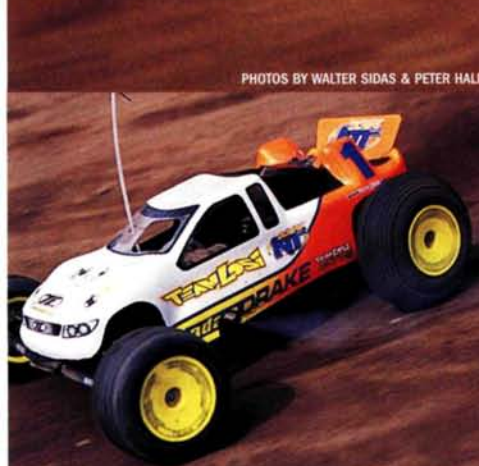


Hard-anodized and Hardcore!

Adam Drake Edition XNT



PHOTOS BY WALTER SIDAS & PETER HALL



WHAT MAKES A DRAKE?

On top of the usual Triple-XNT features, the Adam Drake Edition gets all this stuff.

1 HARD-ANODIZED PARTS. In Drake mode, the XNT is slathered in hard-ano; the chassis, front hinge-pin brace, engine mounts and transmission brace all get a coating of the stuff; so do the threaded shock bodies (as on all Triple-XNTs) and the brake clips, which are usually plastic but are hewn from aluminum for the Drake truck. All the parts look good, but the show-stopper is the hard-ano'd pipe, which epitomizes factory style with its engraved Team Losi Adam Drake Edition logo.

2 FULL GRAPHITE PACKAGE. Losi pioneered the use of graphite-impregnated plastics in RC; they reduce weight while increasing stiffness. The Drakemobile is full of the super-plastic; the shock towers, suspension arms, rear arm mount and nose plate are all made of the stiff stuff.

3 TITANIUM-NITRIDED SHOCK SHAFTS. The shock shafts' gold color isn't just for good looks; it's a friction-reducing

coating that reduces seal stiction. The coating is also extremely hard, so shaft scuffing is greatly reduced.

4 BALL-BEARING STEERING. More precision, less friction; that's what it's all about.

5 1-DEGREE REAR HUBS. This is an Adam Drake setup item; the hubs have an extra degree of toe on each side for a total of 4 degrees per side.

6 ALLOY STEEL FRONT AXLES. I can't say I've heard of anyone tweaking the stock aluminum axles, but the Drake's steel jobs are even stronger than the originals.

7 FURY NT BODY. Team Losi originally created the Fury look for the Matt Francis Triple-XT, and now the nitro version debuts on the Drake XNT. The low-slung, super-slick shell includes a rear wing, window masks and Team Losi decals, but the "Adam Drake" logos are not included; I cut them out of vinyl.

8 LOGO WHEELS AND LOSI RUBBER. These are Losi's standard 2.2 flat-face dish wheels, but they're embossed with the Drake Edition logo so the world will know you bought Losi's best. The wheels are shod with Losi step-pin rear tires and directional-rib fronts.

9 TUNED PIPE AND MANIFOLD. The Triple-XNT has always included a pipe and manifold, but the Drake pipe replaces the stocker's rubber stinger with an integral aluminum piece, and it has the signature hard-ano treatment. The manifold is different, too; it's low-slung for use exclusively with bump-start engines, and its mounting-flange port has been chamfered for smooth, unrestricted exhaust flow.

10 LUNSFORD TITANIUM TURNBUCKLES. Lighter and stronger; you can't beat that.

SPECIFICATIONS

MODEL Triple-XNT Adam Drake Edition

MANUFACTURER Team Losi

DISTRIBUTED BY Horizon Hobby

PRICE \$340

Price varies with dealers

DIMENSIONS

Wheelbase 1.25 in. (286mm)

Width 12.75 in. (324mm)

WEIGHT

Total, as tested 65 oz. (1,851g)

CHASSIS

Type 3.2mm plate with molded upper structure

Material 7075 aluminum/graphite plastic

DRIVE TRAIN

Type Enclosed 3-gear transmission

Primary 51T clutch bell/18T spur gear

Transmission ratio 4.11:1

Final drive ratio 11.65:1

Slipper clutch (F/R) Dual-pad, adjustable

Differential Ball type with tungsten/carbide balls

Bearing type Teflon-shielded

SUSPENSION

Type Lower H-arm with titanium camber link

Shocks Threaded-body, hard-anodized aluminum with titanium-nitrided shafts

WHEELS

Type One-piece 2.2-in. dish

TIRES

Type Red-compound 8-rib directional/Red step-pin

ENGINE AND ACCESSORIES

Engine Not included

Pipe Team Losi Adam Drake

Manifold Team Losi low-profile

Fuel tank 75cc with stone filter

TRIPLE-XNT STANDARD FEATURES

11 3.2MM 7075 ALUMINUM CHASSIS. Other trucks use thinner gauge stuff, and it's typically 6061 aluminum; 7075 is stiffer material.

12 CENTERED FUEL TANK. By centering the tank, Losi ensures that the chassis' balance isn't affected by the tank's getting lighter as it's drained. The tank is suspended from the XNT's molded upper assembly by rubber grommets to reduce fuel foaming.

13 ENCLOSED RECEIVER AND BATTERY BOXES. The XNT's battery box eliminates the need for zip-ties (and the hassle of cutting and replacing them to get the pack out), and it protects the pack from crash damage. The receiver "box" is more of a cover, but it's all you need to prevent fuel from contaminating the receiver and causing a runaway. But if you go awry with the radio gear anyway, a throttle-return spring will close the carburetor automatically.

14 NITRO-SPECIFIC TRANSMISSION. It's still a 3-gear tranny like an electric truck's, but a compound idler gear is used to reduce the ratio to 4.11:1; that makes it possible to get a nitro-friendly final drive ratio without the need for a giant spur gear. There are two benefits to the smaller gear: a "lighter" slipper-clutch setting can be used for a given amount of slip (this improves clutch action and consistency), and the smaller gear allows the tranny to be shorter for a lower center of gravity. Losi also gave the tranny a "Monster" diff that

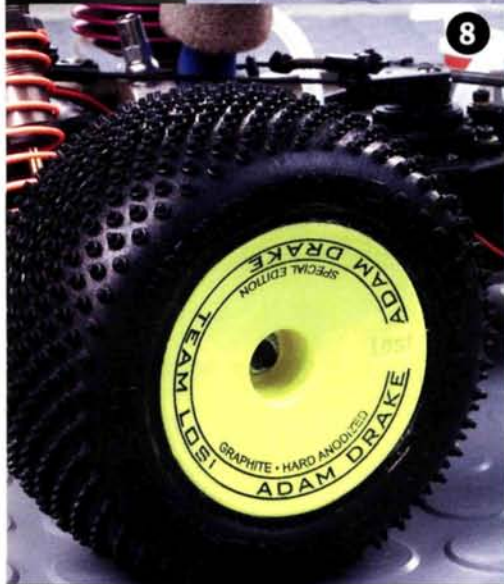
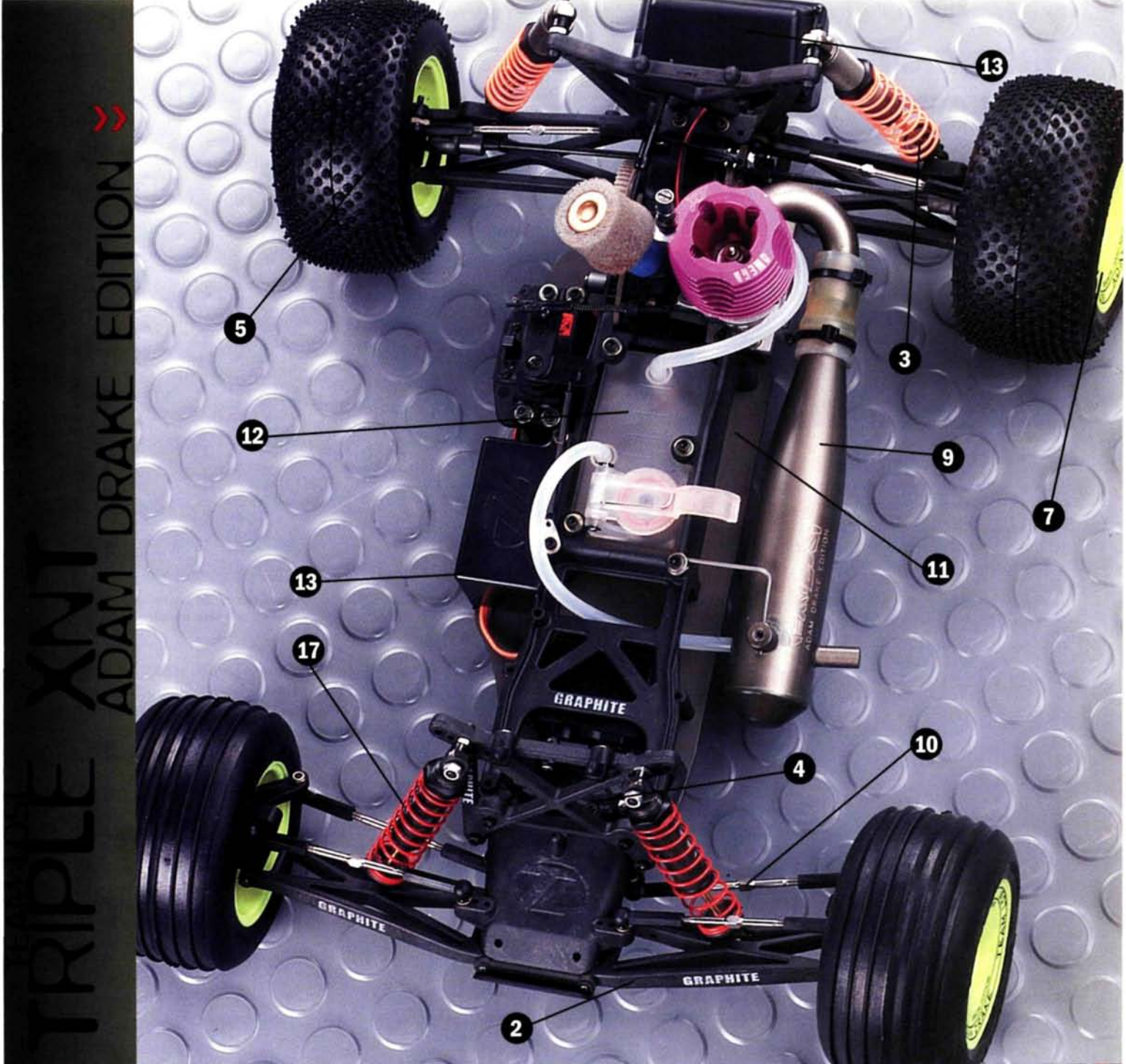
uses a larger-diameter diff gear to better distribute big-horsepower loads.

15 FIBER BRAKE ROTOR. Actually, the fiber rotor isn't big news, but its lobed hub is; its unique shape spreads brake loads over the rotor more evenly than a hex, and that should extend rotor life.

16 AGD STEERING SYSTEM. "Advanced Geometry Design" sounds like something complex, but it's quite simple; instead of being mounting perpendicular to the chassis, the steering bellcranks' pivot posts are angled to match the angle of the steering arms' kingpins. This eliminates bump-steer.

17 HARD-ANODIZED SHOCKS. Since the JRX-Pro SEs days, hard-ano'd shocks have been a Losi standard. Bottom-loaded sealed cartridges make it easy to build the shocks without trapping air in them. Like the standard XNT, the Drake setup uses no. 55 pistons in the front shocks and 56s in the rear; unlike the standard XNT, the shock bodies are threaded and filled with Losi Certified 40WT fluid instead of 30WT, and they're equipped with Orange rear springs (2.9 rate) instead of Reds (2.6 rate).

18 DUAL-PAD SLIPPER CLUTCH. Losi has been using dual pads in its slippers since the Double-X Kinwald Edition debuted. Dual pads mean more surface area, and that ensures more consistent clutch action and finer adjustments.



FINISHING TOUCHES

As a pro-caliber racing truck, the Adam Drake Edition ain't no RTR; you'll have to add your own radio gear, servos, receiver battery and engine (would you have it any other way?).

We equipped our test truck with:

- Omega XT engine.
- JR Racing XR3 transmitter and receiver.
- JR Z8450 Ultra Speed digital steering servo and Z4750 Ultra Race throttle servo.
- Trinity Nitro Metal Hydride receiver pack.
- Trinity Monster Horsepower 20-percent-nitro fuel.

DRIVE TIME

Regular readers of *RC Nitro* will recognize the Drake Edition XNT shown here as Kevin Hetmanski's test machine, and that's a bummer (it isn't my truck!), but I do get the benefit of driving a Kev-dialed truck. No break-in tedium for me; it's straight to the track!



Adam runs rear hubs with 1 degree of toe-in, so that's what the Drake Edition includes. Threaded shock bodies are also standard.



Like the kit's other aluminum parts, the tranny brace is hard anodized, as are the brake cam clips. You won't find a more compact transmission in a nitro truck.

The Omega XT powerplant popped to life as soon as it kissed the starter-box wheel, and after letting it warm up on the box, Kev plopped the XNT onto the track and gave me the thumbs-up along with some advice: "Go easy on the gas; it's got a lot of power." Yeah, whatever, Kev; I think I can handle a 12 ... and at that moment, I wheeled down the front straight and overshot the first turn like that time Michael Schumacher lost his brakes at Silverstone. Lesson learned, I saved full-rip for the back straight where I could roll it on smoothly. The XNT can really lay it down; the step-pin rear rubber hooks up in the soft stuff, and the extra rear toe-in helps in the stability department.

On the gas, the Drake's front end tended to get a little light, so I increased the rear ride height to keep the rear axles level when the suspension squatted under acceleration. This kept more weight up front, and that gave the truck a more connected feel. I also gave the front turn-buckles an extra twist of toe-in, as I felt the XNT was turning in a little more aggressively than I liked, but otherwise, it was good to go. If you're as quick-fingered at the wheel as Adam Drake, the XNT can turn in as quickly as you can—or quicker.

Given the firmer damping of the Drake suspension setup, I expected it to get knocked around a bit more on the bumpy sections than a standard XNT would; in truth, I couldn't tell the difference. The Drake Edition just

felt ultra-plush through the rough, leaving me to ask "What bumps?" Only when I saw less well sorted trucks pogo-ing through the same sections did I realize just how hard the XNT was working to keep its rubber on the ground; I sure couldn't tell by the feel at the wheel. All I had to do was point the front tires where they needed to go and plow through.

How good is it?

It's no surprise that the Adam Drake Edition Triple-XNT is a superlative racing truck. The standard-issue XNT won *RC Nitro*'s race truck shootout back in the March 2001 issue, and the addition of the Drake Edition's durability- and performance-enhancing parts makes it even better. If you just have to race with the best stuff, the Drake Edition can also save you a decent chunk of change; a standard XNT will set you back about \$290, while the Drake model goes for \$340. That's a difference of \$50, which isn't nearly enough to cover the cost of adding all the Drake's parts to a standard kit. And even if it were, you wouldn't get the hard-anodized style-factor points. Can you live without style points? I can't. In all, there's only one thing I don't like about the Adam Drake Edition Triple-XNT: it isn't mine. It's Kevin's, and he isn't giving it up! ■

SOURCE GUIDE

HORIZON HOBBY INC.
(800) 338-4639; horizonhobby.com.

JR RACING;
Distributed by Horizon Hobby.

TEAM LOSI;
Distributed by Horizon Hobby.

OMEGA;
Distributed by Horizon Hobby.

TRINITY PRODUCTS INC.
(732) 635-1600; teamtrinity.com.

OFNA 9.5 RTR



WITH MORE THAN SEVEN KITS AND READY-TO-RUN MACHINES currently available, OFNA has the biggest stable of 1/8-scale buggies in RC. Performance-wise, OFNA's best (if you measure "best" by which buggy Team OFNA and "Jammin'" Jay Halsey choose to race) is the 9.5, which is now available in an RTR version as well as the "Pro" kit raced by the team. Naturally, the RTR doesn't get all the graphite, machined and hard-anodized bits that the Pro has, but it's no stripped-down beater. OFNA includes threaded shock bodies, front and rear swaybars, a 3mm countersunk chassis, rubber-sealed bearings and a steel spur gear (plus other stuff; those are the just the biggies). Seems as if OFNA was aiming for more than just convenience with this RTR package; it looks as if this "play" car has real performance potential. Let's see.



from
racer to
ready-to-run

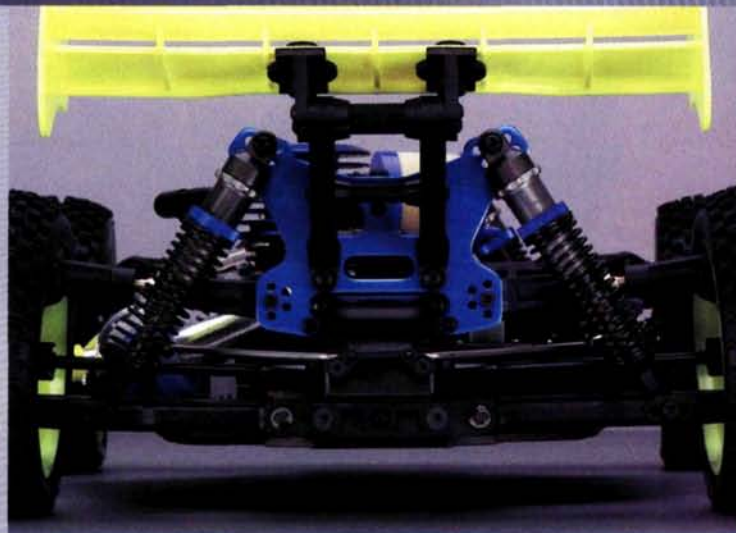
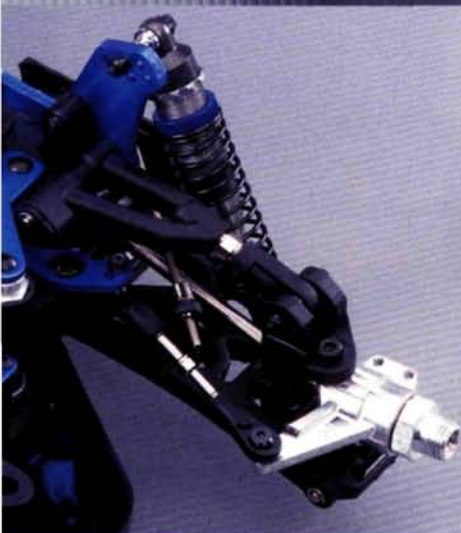




OFNA includes a fail-safe adapter with the 9.5 RTR kit. It's set to close the carb to prevent a runaway if the radio signal is lost.



Below: the front and rear shock towers offer many mounting positions for the top of the shocks. The threaded shock bodies are a nice touch for an RTR vehicle.



DATA CENTER

VEHICLE TYPE Ready-to-run 1/8-scale nitro-powered 4WD buggy

BEST BUYER Beginning to intermediate hobbyists looking for an 1/8-scale buggy with an emphasis on performance and affordability

KIT RATINGS (poor, satisfactory, good, very good, excellent)

Instructions Good

Parts fit/finish Good

Durability Good

Overall performance Very good

SPECIFICATIONS

MANUFACTURER OFNA

MODEL 9.5 RTR

SCALE 1/8

STREET PRICE \$499

(Price varies with dealer)

DIMENSIONS

Wheelbase 320 to 326mm

Width (F/R) 299/305mm

Length 483mm

WEIGHT

Total, as tested 126 oz. (3,572g)

CHASSIS

Type 3mm channeled plate with kick-up

Material Hard-anodized aluminum

DRIVE TRAIN

Type Shaft 4WD

Primary Clutch bell/spur

Transmission ratio 3.29:1

Internal drive ratio 3.31:1

Final drive ratio 9.74:1

Drive shafts (F/R) CVDs/dogbones

Differentials Sealed 6-gear bevel

Bearing type Rubber-sealed

SUSPENSION

Type Lower A-arm with adjustable upper control link

Shocks Threaded aluminum-body, oil-filled dampers

WHEELS

Type Plastic 12-spoke

TIRES

Type Hong Nor X-pattern

ENGINE AND ACCESSORIES

Engine Force P4 .21 with pull-starter

Carb 2-needle slide

Exhaust Aluminum tuned pipe with aluminum header

Fuel tank 125cc with stone filter

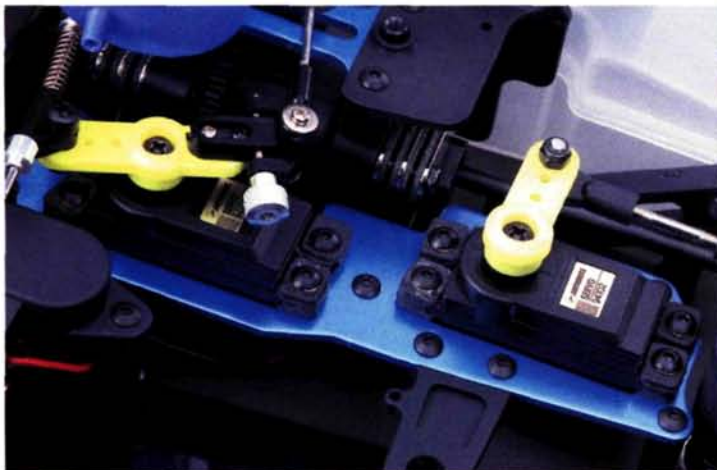
PLASTIC BRACES ADD EXTRA RESISTANCE TO CHASSIS—“TACOING” FORCES.

KIT FEATURES

CHASSIS. The 9.5 RTR's 3mm aluminum chassis is a standard 1/8-scale buggy affair with countersunk screw holes and radiused side channels. Large plastic side guards protect the onboard components from excess dirt and track grime, and a 2.5mm blue-anodized aluminum radio tray with plastic posts supports the radio gear. A 2.5mm-thick steering bellcrank upper plate and front and rear plastic chassis braces that run from the bulkheads to the chassis add extra resistance to chassis "tacoing" forces. Finally, a large plastic radio box and battery tray offer plenty of room for your radio gear and receiver batteries; either flat or hump receiver packs may be installed. To access the radio box, you must unscrew a single screw from the lid; it isn't as quick as a body clip, but that's a minor price for a secure radio box.

DRIVE TRAIN. A 3-differential drive train propels the 9.5 RTR. The 6-gear bevel diffs can be filled with silicone oils for various tuning options, and O-ring seals

Below: the included 94102 servos help keep the 9.5 RTR's cost down, but a stronger steering servo is a smart upgrade. **Right:** a Force .21 pull-start engine is the driving force behind the 9.5. The exhaust flows through a beautifully polished tuned pipe.



prevent the oil from leaking. Steel dogbones link the front and rear diffs to the center diff, which features quad disc brakes with vented steel discs and fiber pads. The calipers are mounted on machine screws; those don't provide a smooth surface for the parts to slide on, but OFNA solves this problem with tiny springs installed between the caliper plates to prevent the pads from hanging up during operation.

Up front, the 9.5 includes OFNA's rebuildable "CVA" (constant velocity

axle) drive shafts, and steel dogbones spin in the rear. Standard-size, 17mm wheel hex hubs complete the drive components.

The drive train includes a steel spur gear and a 3-shoe centrifugal clutch complete with a steel clutch bell and metal-shielded bearings. The entire drive train spins on durable, maintenance-free, rubber-sealed ball bearings.



SUSPENSION AND STEERING. The front and rear suspensions use lower H-arms with adjustable upper links, roll bars and threaded aluminum-body oil-filled shocks with knurled preload collars. Up front, the 9.5 RTR features C-hubs and cast steering knuckles that have upper wishbones attached with steel turnbuckle linkages that allow toe-in adjustments. Caster is fixed, but the buggy's thick, 4mm front shock towers offer three mounting positions for the upper arms to adjust roll-center. In the rear are durable, 4mm shock towers, and the rear hubs feature small plastic spacers that can be repositioned on the outboard hinge pins that allow wheel-base adjustments.

A bushed, twin-bellcrank system with an incorporated single-spring, adjustable servo-saver completes the steering system.

ENGINE AND ACCESSORIES. OFNA packages the 9.5 RTR with its Force P4 .21 pull-start engine. The P4's aluminum-body, 2-needle carb controls fuel consumption, and a short, blue-anodized cooling head with separate

ELECTRONICS & ACCESSORIES

Airtronics Blazer Sport 27MHz transmitter and receiver

The Blazer Sport is as reliable as budget AM systems get, and it did a good job of keeping the 9.5 RTR under control. An FM system with adjustable endpoints would be better, but it would also substantially raise the cost of the buggy. For the 9.5's play mission and its target buyers, the Blazer Sport is ready to hit the backyard.

Airtronics 94102 standard steering and throttle servos

The 94102 servo's 50 oz.-in. of torque is fine for throttle duty but overmatched when steering an 8-pound buggy; you'll need to slow down to a crawl to make tight turns, and steering response is slow. But the servo is undeniably tough, and it won't drain alkaline receiver batteries as quickly as a high-torque servo; that's an important consideration for beginning modelers who depend on alkaline power.



OFNA Fail-safe

OFNA helps to protect your investment by installing an electronic fail-safe unit. This battery fail-safe will lock the brakes and prevent run-aways in the event of a radio-signal loss or a low-power receiver pack. With any luck, more manufacturers will follow OFNA's lead.

OFNA Fuel bottle, glow starter, and body scissors

The 9.5's included glow starter can accept a rechargeable cell or alkaline battery, so if you find yourself without glow power you can get back on track with a quick trip to the convenience store. The supplied fuel bottle is squishy for easy squeezing and has the preferred angled tip, plus a slip-on cover (which I'll lose, no doubt). Body scissors are a great bonus item, but they probably won't be included with the kits much longer, because the 9.5 RTRs should include factory-trimmed bodies by the time you read this.

YOU'LL NEED

- Fuel
- Fuel bottle
- Glow starter
- 12 AA batteries

FACTORY OPTIONS*

- CNC-machined 7075 aluminum
- Steering knuckles—item no. 36516
- Shock towers (F/R)—49003/49004
- Racing chassis—49013
- Front plate—49005
- Rear CVA drive shafts—49025
- Graphite radio tray—49017
- Aluminum chassis braces—49015
- Ball-bearing servo-saver—49014

*Partial list; additional option parts available from OFNA.

glow-plug button cools the engine. A 125cc fuel tank with a built-in fuel-filter stone and spring-loaded filler lid provides the nitro delivery. Sliding engine mounts with hex-head screws fasten the engine to the chassis. Also included is a nice-looking, polished-aluminum tuned pipe with pressure tap, a polished-aluminum header and a blue silicone coupler. Clear fuel tubing with tube clips finish the package.

BODY, WHEELS AND TIRES. Our early-production test car included a clear body (painted for me by "4x4" columnist and assistant editor Kevin Hetmanski), but 9.5 RTRs will be shipping with factory-finished bodies by the time you read this. A large yellow wing and yellow 12-spoke wheels with X-pattern tires give the buggy a racy look.

PERFORMANCE

After giving the 9.5 RTR a once-over to tighten all the screws, I headed to Minnreg RC in Clearwater, FL. Although the track is slightly small for 1/8-scale nitro buggies, it's a premier off-road facility with challenging rhythm sections and a great layout. Fortunately for me, Kevin Hetmanski was in the area to cover the 1st Annual Team Losi Challenge, so I had an experienced pit monkey to refuel and tune the buggy.

After a conservative break-in and a few extra warm-up laps, Kevin began to lean out the carb settings, and the Force .21 was soon responding crisply and producing a nice plume of exhaust smoke as I goosed the throttle when exiting the corners. The engine didn't flame out and idled reliably, but when tuned for maximum performance, it ran very hot at more than 320 degrees F. Such high temperatures seem to be the result of the engine's short cooling head, which apparently doesn't have an adequate cooling area to dissipate the engine's combustion heat.

Upgrading to a larger heat-sink head would help lower operating temperatures, or you can simply run the engine rich for better cooling (albeit with lower performance). Despite the high-temperature running, the Force .21 didn't flame out once and it ran until the last drop of fuel had been burned.

LIKES

- Threaded shock bodies make preload adjustment easy and precise.
- Rubber-sealed bearings are virtually impervious to contamination.
- Strong 4mm shock towers.

The hard, blue-groove track wasn't an ideal match for the stock X-pattern tires (better suited to loamy dirt tracks), but the buggy's 4WD system still allowed it to find traction almost everywhere. The limits of the standard steering servo, however, become apparent quite quickly on a tight track: the buggy simply couldn't cut tight lines. Swapping to a 100 oz.-in. steering servo will certainly enhance the 9.5 RTR's handling. If you install a high-power servo, also consider an upgrade to a rechargeable receiver pack; if you don't, your alkaline battery habit will get expensive, since the stronger servo drains battery power more quickly.

So I'd be able to see what the 9.5 could really do, I dropped in an Airtronics 94357Z servo; this instantly boosted steering torque to 125 oz.-in., and the 9.5's handling was transformed. It turned in aggressively and then broke the rear wheels free in a tractable slide (with tires better matched to a blue-groove track, it probably would have stayed stuck), and the big buggy transitioned well from corner to corner; the swaybars were definitely effective.

THE 9.5 TURNED IN AGGRESSIVELY AND THEN BROKE THE REAR WHEELS FREE IN A TRACTABLE SLIDE.



I ended the 9.5 RTR's test session with some good old-fashioned bashing at a ball field, which is often tougher on a buggy than racing. In a day of racing, you might put the engine through three 5-minute heats and a 20-minute Main with long breaks between, but on play-day, it's one tank after another. Adding to the wear-and-tear factor was the bash-session test pilot—my 11-year-old cousin Cody. He had the whole drive-it-like-ya-stole-it concept dialed and railed on the buggy all afternoon, but we didn't have any engine trouble and made only one pit stop for repairs. A final leap over the pitcher's mound yanked the lower kingpin out of the right steering knuckle, and this was easily repaired.

THE VERDICT

OFNA's new 9.5 RTR is exactly what it was designed to be—an entry-level 1/8-scale buggy with great performance. OFNA recently released the 9.5 Pro buggy, with a long list of included upgrades and there are scads of individual graphite and CNC-machined-aluminum upgrades that could all be added to the 9.5 RTR to transform it into a full race buggy. But all that can come later. Straight out of the box, the 9.5 RTR's threaded shock bodies, front and rear swaybars and turnbuckles make adjustments a breeze. The 9.5's easy-to-start, reliable engine, beefy shock towers and ample power make it a high-performance backyard machine with race potential.

DISLIKES

- An upgrade to a stronger servo is required for the 9.5 RTR to handle at its best.
- Although it never failed, the engine did run very hot.

SOURCE GUIDE

AIRTRONICS (714) 978-1895; www.airtronics.net.
OFNA RACING (949) 586-2910; ofna.com.

THE COMPETITION

MODEL	CHASSIS	BALL BEARINGS	DRIVE AXLES	SPUR GEAR	RADIO SYSTEM	STREET PRICE*	REVIEWED
DuraTrax Axis RTR	3mm aluminum	Shielded	Universal/dogbone	Plastic	Hitec Lynx	\$499	3/00
GS Racing Storm RTR	3mm aluminum	Shielded	Universal/dogbone	Steel	JR XR3	\$560	11/01
OFNA Hyper 7 RTR	3.5mm aluminum	Shielded	Universal/dogbone	Steel	Airtronics Blazer Sport	\$550	3/02
OFNA MBX R2 Plus RTR	3.18mm aluminum	Rubber sealed	Universal/dogbone	Steel	Airtronics Blazer	\$549	7/02
OFNA 9.5 RTR	3mm aluminum	Rubber sealed	Universal/dogbone	Steel	Airtronics Blazer Sport	\$514	08/02

*Prices vary with dealer.

Tamiya TB Evolution II



TAMIYA'S TB-01 CHASSIS DEBUTED as an inexpensive, go-anywhere, shaft-drive machine in rally trim, but Tamiyaphiles soon discovered that the car had competition potential. A raft of factory hop-up parts followed, and they greatly advanced the platform's raceability, but Tamiya's engineers soon hatched bigger plans. Thus, in 2001, the TB Evolution was born. With its TGR-sourced drive-train parts, revised suspension and super-deluxe everything, the new car owed little to the original TB.

At that time, it was difficult to imagine any way to improve such a well-spec'd car. Then again, that's what Tamiya pays its engineers for, so here we are with an improved TB Evolution. Now dubbed the "TB Evolution II," the new car's technical features have been changed much more than its name has, despite its similar appearance to the original. The question is, are the effects to the Evo's performance subtle, or significant? The answer is on the track.

SHAFER SEQUEL



DID YOU EXPECT TAMIYA TO SPEC ANYTHING LESS THAN A TOP-QUALITY GRAPHITE PLATE FOR THE EVO II'S DOUBLE-DECK CHASSIS?



The Evo includes this substantial heat sink, but the car doesn't really need it; the low-friction drive train is very easy on the motor. It looks trick, though.

The completed TB Evolution II is a purposeful-looking piece of equipment. All that really matters for a racecar is performance, but isn't it more fun to have a car that looks as good as this?

Below left: the Evo's thick suspension arms are capped for increased rigidity, and are mounted to super-rigid aluminum arm mounts. The non-turnbuckle camber links and tie rods seem out of place on the otherwise super-deluxe chassis.

Below right: Tamiya's threaded-body dampers are one of the Evo's best features. The front and rear graphite shock towers are attached to aluminum bulkheads, so you know flex won't be an issue.

DATA CENTER

VEHICLE TYPE 1/10-scale 4WD competition electric touring car

BEST BUYER Competition drivers, any fans of top-flight racing gear

KIT RATINGS (poor, satisfactory, good, very good, excellent)
Instructions Very good
Parts fit and finish Excellent
Durability Very good
Overall performance Very good

SPECIFICATIONS

MANUFACTURER Tamiya
MODEL TB Evolution II

SCALE 1/10
PRICE \$420

(Price varies with dealer)

DIMENSIONS

Wheelbase 10.1 in. (256mm)
Width 7.5 in. (191mm)

WEIGHT

Total, as tested 56.1 oz. (1,590g)

CHASSIS

Type Plate, double-deck
Material Graphite with aluminum bulkheads

DRIVE TRAIN

Type Shaft-driven 4WD
Primary 34T pinion/88T spur gear
Transmission ratio 2.6:1
Final drive ratio 6.73:1
Drive shafts Universal joint, rebuildable
Differentials (F/R) One-way unit/ball differential
Bearing type Metal-shielded ball bearings

SUSPENSION

Type Lower A-arm with adjustable camber link
Shocks Aluminum threaded-body with Teflon piston and shaft guides

WHEELS

Type Zero-offset dish

TIRES

Type Tamiya Type-A belted slicks with shaped inserts



KIT FEATURES

CHASSIS. Did you expect Tamiya to spec anything less than a top-quality graphite plate for the Evo II's double-deck chassis? The lower chassis is 2.5mm thick, and the upper deck is 2mm in cross-section. The upper deck is narrower than the one on the first TB Evolution, and that should help the chassis "give" a little more; there is such a thing as too stiff, you know. The Evo II's top deck also differs from the original car's in that it doesn't have "fingers" that brace the bulkheads. This is no doubt because the Evo II replaces the original plastic front and rear bulkheads with rock-solid machined-aluminum parts, which need no additional support. The aluminum bits add big style points, too, especially with their gunmetal finish.

Six battery slots are milled into the chassis' right side, but there's no need to reach for strapping tape to secure the cells; plastic brackets capture the ends of the battery pack, and a body-clip-secured graphite strap holds the pack down.

DRIVE TRAIN. The Evo II's drive train is unchanged from the first TB Evolution model, and that means it's still loaded with Tamiya's best stuff. A lightweight aluminum drive shaft is the heart of the drive system, and it reaches across the chassis to spin the front and rear differentials via plastic bevel pinion and ring gears.

The spur gear is attached directly to the drive shaft via a crosspin that engages a slot in the spur gear; standard spur gears won't fit. Six spur gears are provided: three 88-tooth and three 72-tooth. The gears are 0.4 module, or "metric 64 pitch," which means that standard 64-pitch pinions won't mesh properly with the kit's spurs. But don't fret; you can get rolling with the included 34-tooth pinion. Gear mesh is adjusted by sliding the motor in its slotted, machined-aluminum mount.

The Evo II's gear cases are lifted directly from Tamiya's TGR super-scale nitro car, so you know they're burly. The cases fit together clamshell-style and are pinched closed by the aluminum bulkheads and a ring that encircles the "nose" of the case, where the drive shaft enters. The front gear

case is home to a one-way "diff" that is built around the largest one-way bearing I've ever seen in an RC kit—no worries of a blown bearing there.

The rear gear case houses a ball diff that is more complex than what I'm used to seeing but has a lot of interesting features. A stack of Belleville washers loads a large (11mm diameter), thrust bearing, and the diff rings are very thick steel with a slick, polished finish. Lightweight aluminum "pressure plates" sandwich the spur gear, and the thrust-bearing side of the diff is capped by a splined cover that is installed with rubber cement. Splined outdrives plug into this cap and the opposite pressure plate to complete the diff, which operates quite smoothly.

Universal-joint axles are the finishing touch. The "old" Evo had traditional universals, but the Evo II uses a more compact and fully rebuildable design patterned after MIP's now classic CVD. (If imitation is the sincerest form of flattery, then the MIP CVD might be the most flattered design in RC history.) Even the Evo II's hex hubs are trick; the polished-aluminum hexes use O-rings to capture the crosspins.

SUSPENSION AND STEERING. The original Evo sported upper wishbone arms, but the Evo II features straight camber links. Disappointingly, the links are merely threaded rod and aren't as finely or easily adjustable as turnbuckles would be. The rods are certainly better than fixed links, but an all-the-options racecar deserves turnbuckles as standard equipment.

The lower A-arms are capped for rigidity and are very beefy at 7mm thick. Additional strength comes from solid-aluminum arm mounts, which are considerably more solid than the first Evo's plastic mounts and better support the hinge pins by capping the pins at each end. Swaybars are used front and rear and are relatively thin at 1.4mm; they should be a good match for real-world surfaces as opposed to super-stiff 'bars useful on only the stickiest, flattest tracks.

Tamiya Racing Factory threaded-body, aluminum shocks damp the suspension and have all the good stuff you could hope to pack into an RC shock. Teflon pistons and shaft guides offer minimum stiction, and silicone O-rings keep the shock fluid where it belongs—inside the shock. Silicone bladders are used for volume compensation and are cleverly "sprung" by O-rings stacked between the bladder and the shock cap.

Steering is handled by a bearing-supported but otherwise ordinary dual-bellcrank system and servo-mounted servo-saver (it's Tamiya's heavy-duty, three-spring job). The tie rods are threaded, but no turnbuckles—bummer.

BODY, WHEELS AND TIRES. The TB Evolution II doesn't include a body; the shell shown is a Protoform Citroen Xsara designed for rally duty, but I think it makes a great-looking street body. The Evo II does include wheels, tires and inserts, and they're Tamiya's best: Type-A belted slicks with shaped inserts mounted on zero-offset dish wheels. The race-ready rolling stock is well matched to the high-performance chassis, but since dish wheels don't produce a nice motion blur for action photos, I installed Traxxas wheels for the opening-spread shot.



That's the rear ball differential on top; note the splined pressure-plate cap and outdrives. The disassembled front one-way is below. The gi-normous one-way bearing fits into the white-plastic holder, and grabs the hardened inserts that are splined to accept outdrives such as those used on the rear diff.

BUILDING & SETUP TIPS

STEPS 2 AND 4. Instead of using dirt-attracting grease, I lubricated the hinge-pin pivot cups with a "dry" Teflon-based lube meant for bicycle chains. This type of lube goes on wet, but it evaporates into a slick, but non-sticky, Teflon film.

STEPS 8 AND 10. Try Aero-Car Super Speed Gear Lube on the Evo's ring and pinion gears instead of the kit grease. I use the stuff on all my cars, and the gears seem to spin more freely with it.

STEP 9. That isn't the "apply grease" icon next to the pressure-plate cap; you're supposed to apply rubber cement to prevent the parts' splines from sliding apart.

STEP 30. Tamiya suggests that you set the spring preload for the front shocks at 4mm. To make this adjustment precisely without measuring, snap a V7 preload spacer onto the shock body, and then dial the spring collar up the shock body until it touches the spacer. You can then remove the spacer, or leave it on as extra insurance against the preload collar's setting from drifting.

THREAD-LOCK. Tamiya doesn't cite any specific thread-lock requirements, but with its many metal-to-metal joints, I found myself using quite a bit of the stuff as I assembled the Evo. I suggest you apply it to the screws in the arm mounts, bulkheads, motor mount, axle cross-joints and any pivot balls that thread onto studs.

YOU'LL NEED

- 190mm body
- 6-cell battery
- Charger
- Transmitter and receiver
- Steering servo
- Electronic speed control
- Tire glue
- Rubber cement

Peak PowerFlo Sanyo 2400 matched pack and Hellfire RS24 stock motor

Peak's TOP-based rebuildable stocker has the bonus convenience feature of surface-mount capacitors, but it's the racin' stuff inside that's most important. Latest-generation



G12 magnets and Peak's split "Dual Stack" armature with "Power Tunnel" drilling give the Hellfire snappy acceleration. I went for Peak's blueprinted Hellfire, which adds a diamond-trued comm and race brushes to the features list.

A 6-pack of Peak PowerFlo Sanyo 2400 cells spins the motor with punch to spare. After zapping each cell to increase voltage, Peak triple-cycles the cells with a 30A discharge to simulate big-draw race conditions and weed out any weak members of the herd. The cells that make the cut are matched up for PowerFlo packs.

Additional items used to complete the Tamiya TB Evolution II:

Novak XXtra synthesized FM receiver

Novak Cyclone C2 ESC

Futaba 3PDF transmitter

Futaba 93402 steering servo

PERFORMANCE

Before letting it loose on a racetrack, I took the Evo II out for a shakedown run in the office parking lot just to get the trims right and make sure the chassis wasn't tweaked (and I'll also confess that I simply couldn't wait to drive the car). I made a few figure-8s and discovered the car turned slightly wider to the left than the right (despite equal steering-servo throw), which I easily remedied with a few careful twists of the suspension's droop screws and a corresponding twist or two of the preload collars.

With the car fully dialed in, I was ready for a paved-track test session. From the first pull of the trigger, the Evo distinguished itself with its noise—or lack thereof. The drive train was eerily quiet; the sound of the tires singing on the pavement was louder than the whir of the shaft drive. Every ounce of torque the Peak Hellfire could deliver seemed to be going straight into the tires, and the Evo II shortened the track's long front straightaway as quickly as anything outside of mod class can.

Through the sweepers, the Type-A slicks held the Evo tightly to any line that I chose, and it felt as if every fraction of an mph the car took into the corner was still there on the exit; the front one-way and swaybars were helping, no doubt. Tighter corners got some body roll going, but it was relatively mild at stock-motor speeds; for high-traction mod racing, a switch to stiffer springs and heavier damping will be the hot setup. Through any kind of turn, the Evo II felt well connected to the track and transitioned quickly from corner to corner. Snapping the wheel from lock to lock caused the Evo to kick the rear end out, but the sticky slicks didn't make for much of a slide; it was more of a break-free-and-grab-again type of thing.

One feature that this most expensive of Tamiya tourers shares with even the least expensive TLo1 sedan is high durability. The Evo II is designed to snake around the boards without a tap, but it's good to know that you won't shed a suspension arm or completely whack out your setup if you rail the lumber. Even though I ran the Evo minus its foam front bumper (there wasn't room for it under the short-nose Citroen body), the worst I could do was transfer some board paint to the sides of the dish wheels and the bottom of the chassis.

THE VERDICT

With its gleaming graphite chassis, beautifully machined aluminum bulkheads, race-ready tires, gem-like threaded-body shocks and excellent track manners, what's not to like about the TB Evolution II? Aside from the bothersome-but-not-the-end-of-the-world lack of turnbuckles and incompatibility with standard gears, the only thing not to like is the Evo II's price tag—\$400 to \$450, depending on where you buy it. Other pro-caliber touring cars can do what the TB Evolution II can and do it more affordably.

But those cars aren't Tamiya's, and that's what makes the Evo II such a cool car. When Tamiya puts together a pure-performance, it-costs-what-it-costs dream kit such as this one, the result is pure RC nirvana. Every individual part is the best Tamiya can make and is flawlessly finished. Even completely hidden parts such as the diff pressure plates are anodized in a gunmetal tone and show no machine marks. When the last screw is snugged up, you're left with a pure expression of automotive exotica—RC style. Other cars can match the TB Evolution II's performance, but they can't deliver the TB Evolution II experience.



FROM THE FIRST PULL OF THE TRIGGER, THE EVO DISTINGUISHED ITSELF WITH ITS NOISE OR LACK THEREOF.

LIKES

- Flawless fit and finish, top-quality materials.
- Excellent shocks.
- Superb handling and rail-gun acceleration.

DISLIKES

- Why no turnbuckles? This is supposed to be an all-the-goodies kit.
- Doesn't accept standard spur gears.
- Expensive. You get a lot, but you pay a lot.

SOURCE GUIDE

AERO-CAR TECHNOLOGY (708) 246-9027; harkan@earthlink.net.

FUTABA; distributed by Hobbico/Great Planes Model Distributors (800) 637-7660; futaba-rc.com.

NOVAK (949) 833-8873; teamnovak.com.

PEAK RACING (714) 692-8533; peakmotors.com.

PROTOFORM; distributed by Pro-Line (909) 849-9781; pro-lineracing.com.

TAMIYA (800) 826-4922; tamiyausa.com.

TRAXXAS (888) 872-9972; traxxas.com.

THE COMPETITION

	CHASSIS	DRIVE TRAIN	SHOCKS	DIFFERENTIALS	AXLES	WHEELS & TIRES	BODY	PRICE**	REVIEWED
Associated Factory Team TC3	Molded semi-tub	Shaft	Aluminum threaded-body	Ball	MIP CVD	Not included	Not included	\$300	12/01***
MRC Academy STR-4 Pro	Graphite plate	Shaft	Aluminum threaded-body	Ball	Universal	Belted slick	Not included	\$220	12/01***
Tamiya TB Evolution II	Graphite plate	Shaft	Aluminum threaded-body	One-way/ball	Universal	Belted slick	Not included	\$419	8/02
Team Losi Triple-XS	Molded semi-tub	Single-belt	Aluminum	Ball	Universal	Belted tread	Losi Stratus type	\$220	12/01***
XRAY T1	Graphite plate	Dual-belt	Plastic threaded-body	Ball	Universal	Belted slick	Not included	\$325	12/01***

*Partial listing, category is too large to include all vehicles. **Price varies with dealer. *** Pro Touring Car Smackdown.

HPI Super Nitro RS4 RTR



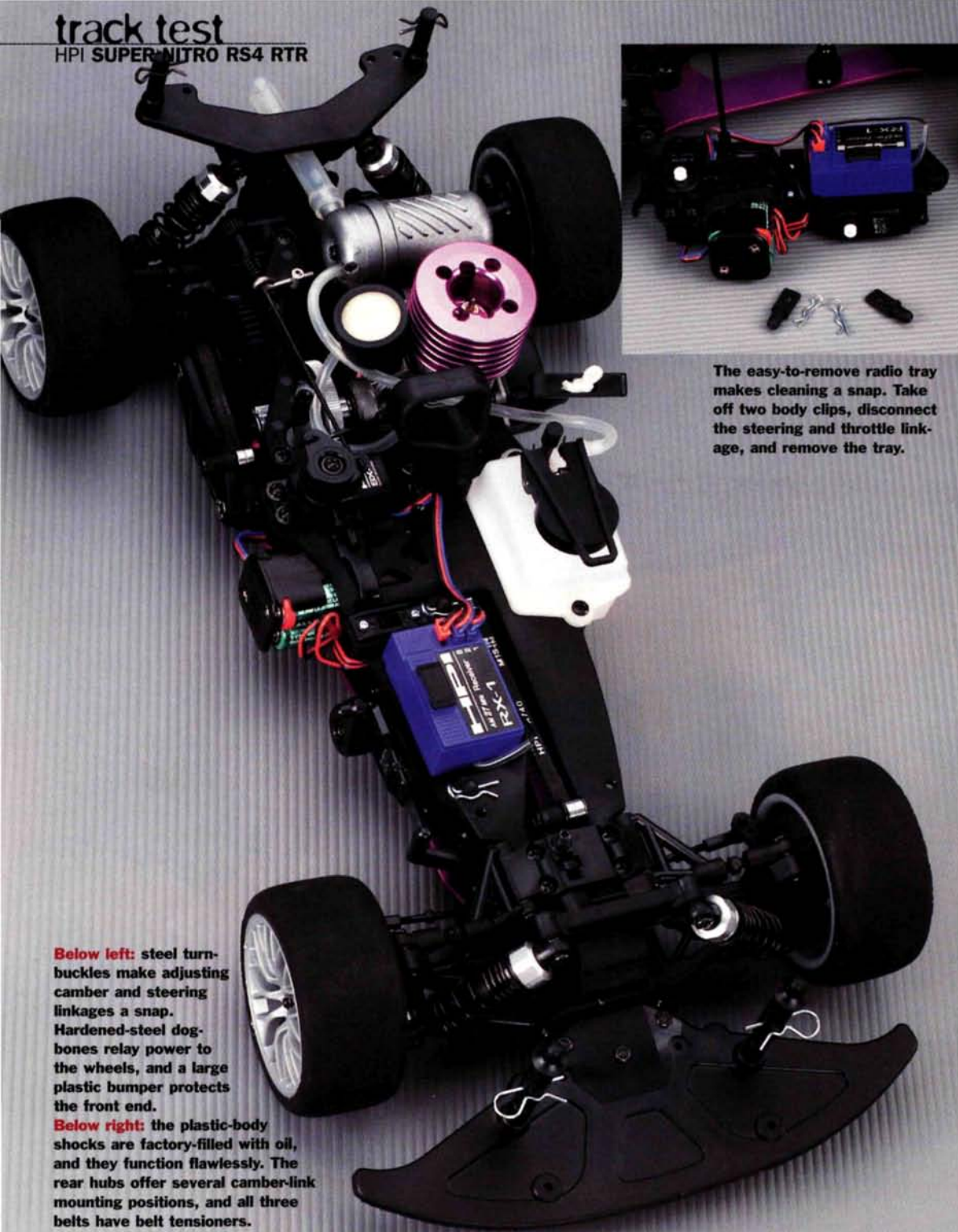
HPI HAS MAINTAINED A STABLE OF READY-TO-RUN KITS since offering the Nitro RS4 RTR, but the company's "super"-size cars have been strictly kits—at least, until now. In ready-to-run mode, the Super Nitro RS4's 3-belt-drive chassis arrives factory assembled with only a couple of steps required to get it rolling, and you have a choice of a Porsche 911 or a Dodge Viper GTS-R shell.

The Super RS4's larger size improves stability and gives it eye-catching good looks. It's basically a larger version of the Nitro RS4, with which it shares many of its chassis components and hop-up parts. It includes HPI's updated Nitro Star .15FE engine and the high-quality, "made by Airtronics" TX-2 radio system.

PHOTOS BY PETER HALL



SUPER-easy
SUPER NITRO



Below left: steel turn-buckles make adjusting camber and steering linkages a snap. Hardened-steel dog-bones relay power to the wheels, and a large plastic bumper protects the front end.

Below right: the plastic-body shocks are factory-filled with oil, and they function flawlessly. The rear hubs offer several camber-link mounting positions, and all three belts have belt tensioners.



The easy-to-remove radio tray makes cleaning a snap. Take off two body clips, disconnect the steering and throttle linkage, and remove the tray.

DATA CENTER

VEHICLE TYPE 4WD nitro-powered touring car

BEST BUYER Intermediate enthusiasts and those who want to get started in nitro racing

KIT RATINGS (poor, satisfactory, good, very good, excellent)

Instructions Very good

Parts fit and finish Very good

Durability Very good

Overall performance Very good

SPECIFICATIONS

MANUFACTURER HPI Racing

MODEL Super Nitro RS4 RTR

SCALE 1/10

PRICE \$360

(Price varies with dealer)

DIMENSIONS

Wheelbase 11.02 in. (280mm)

Width 8.74 in. (221mm)

WEIGHT

Total, as tested 64.7 oz. (1,834g)

CHASSIS

Type Double-deck

Material Molded upper/2.5mm, purple-anodized aluminum lower

DRIVE TRAIN

Type 3-belt 4WD

Primary 13T Clutch bell/44T spur gear

Transmission ratio 2.16:1

Final drive ratio 7.30:1

Drive shafts Dogbones

Differentials Enclosed metal bevel gear

Bearing type Metal-shielded ball bearings

SUSPENSION

Type Lower A-arm with adjustable upper A-arm

Shocks Oil-filled, coil-over, plastic body

WHEELS

Type Gray mesh, one-piece plastic

TIRES

Type HPI M-compound racing slicks

ENGINE & ACCESSORIES

Engine HPI Nitro Star .15FE with pull-start

Carburetor Rotary with a high-end needle valve

Exhaust Canister muffler

Fuel tank 75cc, primer equipped



ADJUSTABLE BELT TENSIONERS RIDE ON ALL THREE BELTS, AND 22 METAL-SHIELDED BALL BEARINGS KEEP THE ROTATING PARTS OF THE DRIVE TRAIN SPINNING FREELY.

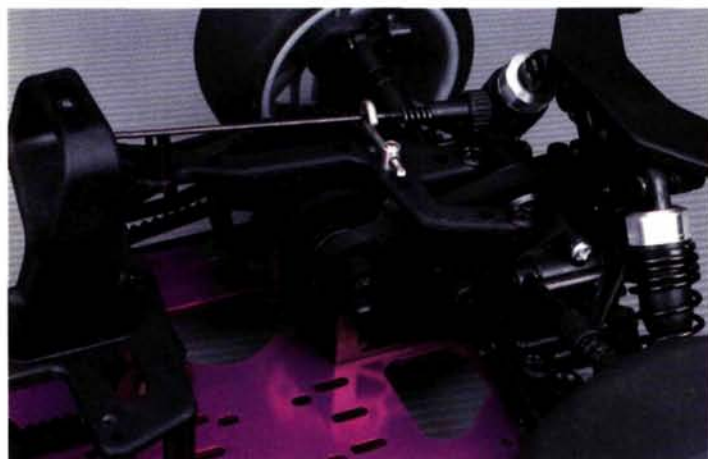
KIT FEATURES

CHASSIS. The chassis plate is 2.5mm-thick, purple-anodized aluminum, and all of the screws on the underside are countersunk. Large openings in the plate reduce weight, allow debris to fall clear of the drive belts and allow access to the flywheel if a non-pull-start engine is installed. Extra engine-mounting holes make a powerplant upgrade possible.

The upper deck has a modular design and is constructed of thick plastic. A well-thought-out feature is the radio tray that accommodates the electronics; it's removable, so after-run cleaning is a cinch. In the middle of the chassis is a handy little carrying handle, and on the front is a massive, plastic bumper that helps protect the front end from the inevitable collisions.

DRIVE TRAIN. The 3-belt drive train provides full-time 4WD. I had hoped that HPI would follow the standard it set with its newly released RTR 3 and use shaft-drive instead of debris-catching belts. Who knows? Maybe a Super Nitro shaft drive is on the horizon. Adjustable belt tensioners ride on all three belts, and 22 metal-shielded ball bearings keep the rotating parts of the drive train spinning freely. A single-speed transmission with a 13-tooth clutch bell and 44-tooth spur gear sits at the heart of the drive train.

The spur gear is mounted on a layshaft with a drive belt on either side; one belt spins the rear differential, and the other leads to a second layshaft that drives the front end. A robust, plastic gear brace keeps this setup properly aligned and protected. The front and rear sealed, metal, bevel-gear differentials have steel dogbones that transfer the power out to the axles, and a thick, plastic-composite disc brake with metal pads brings the RS4 RTR to a halt.



The belt drive delivers smooth power to all four wheels and spins on good-quality shielded ball bearings. A plastic disc brake with metal calipers slows the car.

SUSPENSION AND STEERING. HPI hit the mark when it designed a sturdy, adjustable suspension system for the RS4 RTR. Sturdy lower A-arms capture the caster blocks, and adjustable upper A-arms round out the solid assembly. The front caster blocks are set with 10 degrees of caster, and turnbuckles are spec'd for easy toe and camber adjustments. An included turnbuckle wrench makes these adjustments a breeze. The camber links and shocks can also be repositioned for further suspension tweaking. A twin-bellcrank system with a piano-wire drag link and a servo-saver on the servo instead of on a bellcrank gets the front wheels pointed in the right direction.

The factory-assembled, plastic-body, oil-filled shocks with silver-anodized caps have dual O-ring seals in the bottom to prevent the oil from escaping, and they absorb rough terrain very well. The shocks have been updated with a coarser thread and a cap design to help prevent cross-threading when you reassemble them. On the outside, a stiff, black spring is spec'd with an assortment of preload spacers included for fine tuning.

ENGINE AND ACCESSORIES. HPI's Nitro Star 15FE has been revamped to improve its acceleration, power and durability. This pull-start powerplant no longer comes with the cast head; instead, it has a sweet-looking, purple-anodized heat-sink head for better cooling. It also features ABN construction (aluminum piston, nickel-plated brass sleeve), a rotary carburetor with a single high-end needle valve and a side exhaust.

A small, oiled-foam air filter cleans the air for the carb and stays in place without a zip-tie. Exhaust travels through a cast-aluminum canister muffler with plastic tubing that directs it out at the rear of the chassis. The 75cc fuel tank has a built-in primer.

Before I tested the Super Nitro, I replaced the stock exhaust tube with a longer one. The stock tube exits just above the rear diff and stops about an inch from the chassis; this causes the exhaust to be sprayed inside the body. I installed a 5-inch-long tube that exits behind the body.

BODY, WHEELS AND TIRES. The RTR comes with the choice of a Porsche 911 or Dodge Viper GTS-R body. The wheelbase can be extended from 280mm to 300mm simply by turning over the rear lower A-arms. This means that any of HPI's "Super-Size" bodies will fit, and so will the big bodies from Tamiya and Kyosho.

My kit arrived with the great-looking 911 body that comes with the choice of a production-style wing or race wing. Like most of HPI's bodies, it has protective overspray film, window masks, marked mounting-hole locations and a large decal sheet. The hot paint job on my 911 was laid down by Bill Zegers.

A set of HPI's M-compound racing-slick tires with one-piece foam inserts and fine-looking gray mesh wheels is included. In an RTR kit, it would have been nice if the tires arrived mounted and glued, but it's easy to do. I have had a lot of success with HPI's slicks; the M-compound is the hardest HPI makes, and it's a good choice for beginners. It offers a long tread life and hooks up well on most surfaces.

ELECTRONICS & ACCESSORIES

HPI TX-2 transmitter and RX-1 receiver. Airtronics manufactures this pistol-grip radio gear for HPI; it features steering dual rate, throttle and steering trims, servo-reversing switches, an LED battery-status indicator and a recharging jack for use with optional Ni-Cd batteries. Steering dual rate is a welcome feature on an RTR radio system. The RX-1 receiver, battery holder and servos are all factory-installed, so you have only to add 12 AA alkaline cells: 8 for the transmitter and 4 for the receiver pack.

HPI SX-1 servos. This is a relabeled Airtronics heavy-duty standard servo; it's good for about 50 oz.-in. of torque. Two of these SX-1s are each assigned to control the steering and throttle.

YOU'LL NEED

- 12 AA alkaline batteries
- Fuel
- Lexan body paints
- Glow-plug igniter
- Tire glue

FACTORY OPTIONS

- Tuned pipe and exhaust header set—item no. A970
- High-performance air cleaner—72175
- Nitro handling kit—72515
- 2-speed heavy-duty transmission—72516
- Super shock set—A111
- Carbon-graphite suspension arms—A468
- Fiber-disc brake—A844
- Foam bumper—627

*Partial listing; additional option parts available



PERFORMANCE

I allowed the engine to come up to temperature and then made some fast runs to tune the carb for optimal performance at the high end. When I reached this setting, however, low-end performance suffered; it became rich, and this caused hesitation when I accelerated off the line. Even brief engine idling causes excess fuel build-up, which must be cleared. The throttle response becomes quicker when you cruise around because fuel does not have a chance to build up.

The Super RS4's big Porsche 911 body adds to the car's appeal when you see it topped out and screaming across a parking lot. I wondered how fast the Super RS4 was actually going, so I pulled out our trusty radar gun to verify its speed; it clocked in at an awesome (for an RTR) 37.7mph. It was during one of the high-speed passes that the chassis' true durability became apparent. On the tail end of the straightaway, the 911 hit a dip in the pavement; the car was launched into the air and then slammed into the curb and cartwheeled a few times. Amazingly, the Porsche held up perfectly,

LIKES

- Improved Nitro Star 15FE engine.
- New purple-anodized heat-sink head.
- Complete set of ball bearings included.
- Loads of hop-ups available.

with only gouges and scrapes on the chassis and body.

I WONDERED HOW FAST THE SUPER RS4 WAS ACTUALLY GOING, SO I PULLED OUT OUR TRUSTY RADAR GUN TO VERIFY ITS SPEED; IT CLOCKED IN AT 37.7MPH.



Trinity Monster Horsepower 30-percent- nitro fuel

I've used this fuel in several nitro vehicles and have had nothing but success with it. The 30-percent-nitro content makes startups easy and provides plenty of power.



Bringing the Super RS4 to a stop required a fair amount of distance. The single, plastic, disc brake makes it possible to modulate braking without an on/off feel. The brake disc wears

rather quickly and becomes thinner, so there is less material to clamp on to. Upgrading to HPI's fiber-disc brake will result in a longer-lasting unit.

Entering turns, the Porsche displayed a lot of understeer. The hard M-compound tires, along with a stiff suspension setup, were the culprits. Exiting the turn, I could nail the throttle just after the apex, and the car had no problem laying down the power, thanks to the three-belt 4WD.

THE VERDICT

Overall, HPI has done an excellent job with the Super Nitro RS—no surprise, really, since the kit is already a proven machine. I would like to see HPI include a fully adjustable 2-needle carburetor as stock, but that can be added later.

For anyone who wants to get started in nitro with a big parking-lot racer—without the fuss of building—this is your car. Once you are comfortable with its performance, an enormous number of hop-ups are available for you to completely customize your ride.

DISLIKES

- No low-end carb adjustment or tuned pipe.
- Exhaust tube too short for included body.

SOURCE GUIDE

AIRTRONICS (714) 978-1895; airtronics.net.
DU-BRO (800) 848-9411; dubro.com.
HPI RACING (949) 753-1099; hpiracing.com.
TRINITY PRODUCTS INC. (732) 635-1600; teamtrinity.com.
ZEGERS R/C GRAFFIXX (561) 988-5411; rcpaintman@aol.com.

THE COMPETITION

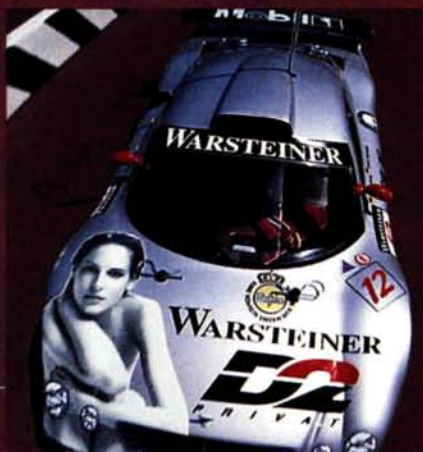
MODEL	CHASSIS	ENGINE	EXHAUST	WHEELBASE	BRAKE DISC	RTR W/RADIO	STREET PRICE*	REVIEWED
HPI Super Nitro RS4 RTR	2.5mm aluminum	HPI Nitro Star 15FE	Canister muffler	280mm	Molded plastic	Yes	\$360	8/02
Kyosho SuperTen GP	3mm aluminum	Kyosho GT-15	Canister muffler	279.4mm	Stainless steel	No	\$380	7/98
Tamiya TGR	2.5mm aluminum	Tamiya FS15RB	Tuned-type	300mm	Fiber	No	\$325	7/01
Tamiya TGX MK 1	2.5mm aluminum	Tamiya FS-15	Canister muffler	298.5mm	Fiber	No	\$399	7/98

*Price varies with dealer

CEN GX1 Mercedes CLK GTR

PILOTING A NITRO-POWERED

touring car, hearing the transmission snap into second gear and watching the car streak across an open parking lot are among RC's most enjoyable experiences. Rookies and racers alike search for fast, affordable, fun machines when it's time to lay down their cash for a parking-lot cruiser, and CEN's new ready-to-run (RTR) 4WD nitro touring car, the GX1 Sport, is one such machine. The GX1 boasts dual-belt drive, oil-filled shocks, a 2-speed transmission, a pull-start NT-16 nitro engine and 13 painted body choices.



PHOTOS BY PETER HALL

HIGH SPEED



AND HIGHLY DETAILED



Plastic shocks handle bump control, and screw-type hinge pins help keep the GX1's price in check. You can also see the vented brake rotor in this shot, behind the spur gears.

DATA CENTER

VEHICLE TYPE 1/10-scale 4WD .15-powered touring car

BEST BUYER Nitro enthusiasts who enjoy fast, prebuilt touring cars at a low price

KIT RATINGS (poor, satisfactory, good, very good, excellent)

Instructions Very good

Parts fit and finish Good

Durability Very good

Overall performance Very good

SPECIFICATIONS

MANUFACTURER CEN

MODEL GX1 Sport

SCALE 1/10

STREET PRICE \$399

(Price varies with dealer)

DIMENSIONS

Wheelbase 10.12 in. (257mm)

Width 7.67 in. (196mm)

WEIGHT

Total, as tested 64.2 oz. (1,997g)

CHASSIS

Type Stamped double-deck plate

Material 2mm 6061 T6 aluminum

DRIVE TRAIN

Type 4WD dual-belt drive, two diffs

Primary Clutch bell/spur gear

Drive shafts Steel dogbones

Differentials 3-gear bevel gear

Bearing type Brass bushings with tranny bearings

SUSPENSION

Type (F/R) Double

wishbone/upper threaded-rod link

Shocks Plastic-body, oil-filled

WHEELS

Type CEN split 10-spoke nylon

TIRES

Type CEN V-tread tires

ENGINE AND ACCESSORIES

Engine CEN NT-16 pull-start

Carburetor 2-needle rotary

Exhaust Cast-aluminum manifold with plastic tuned pipe

Fuel tank 75cc with primer

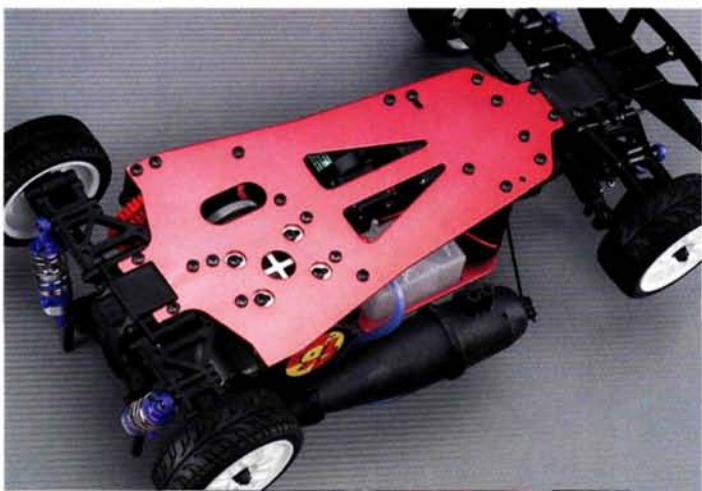
Below left: the camber and toe links are adjustable, albeit with some disassembly. The steering bellcranks turn on metal bushings. **Below right:** a pair of belts and a jackshaft spin the GX1's enclosed front and rear gear-boxes.



THE GX1'S BRIGHT RED-ANODIZED, DOUBLE-DECK CHASSIS IS STAMPED FROM DURABLE 6061 T6 ALUMINUM ALLOY.

KIT FEATURES

CHASSIS. The GX1's bright red-anodized, double-deck chassis is stamped from durable 6061 T6 aluminum alloy. Plastic radio-tray posts support the 2mm upper deck that houses the throttle servo, receiver (exposed and secured with an adjustable zip-tie), on/off switch and fuel tank. A 4-cell



Above: the engine mounting screws are countersunk in slots, but all of the chassis other screws are not. **Right:** the GX-1's 2-speed tranny helps propel the car to just over 40mph, and the padded brake caliper grabs a steel rotor to pull it to a stop.



alkaline receiver-battery holder is anchored underneath the receiver and is sandwiched between the upper and lower decks. On the lower deck, the steering servo and all other components are attached to a 2mm-thick chassis. The lower chassis doesn't have countersunk screw holes; that's a bummer for a competition car, but it isn't a tragedy for a parking-lot play machine like the GX1.

DRIVE TRAIN. The CEN's two-belt drive train has an atypical layout. The center pulley shaft is mounted on top of the upper deck; most touring-car designs run belts along the lower chassis plate. The long drive belt travels

at 45 degrees up to the center pulley shaft, which connects the front drive train via a single short belt.

It should be noted that on the car I had, the drive train, which spins on bronze bushings, was very tight out of the box; it was so tight that the car barely rolled when pushed. Rather than strain the engine during the break-in process to free up the drive train, I used a drill to spin the layshaft until the belts and bushings turned more smoothly.

The front and rear bevel-gear differentials spin on brass bushings and use three spider gears instead of the usual two. A finger-type 2-speed transmission with plastic gears mates to a steel clutch bell, and a 3-shoe carbon clutch transfers the engine's power.

Front and rear dogbone axles with plastic wheels spin the GX1's wheels, and a single vented steel disc brake stops the car when clamped by fiber pads.

ENGINE AND ACCESSORIES. CEN packages the GX1 Sport with a complete NT-16 pull-start engine with a black-anodized cooling head. The NT-16 features durable ABC construction and a 2-needle carburetor with high- and low-speed adjustments. The engine inhales through a foam-element air filter, drinks from a 75cc fuel tank that features a spring-loaded primer pump and exhales through a 2-bolt, cast-aluminum header and plastic tuned pipe with dual-exhaust outlets.

SUSPENSION AND STEERING. The GX1's 4-wheel independent suspension features lower A-arms with threaded-rod upper links. The car features adjustable threaded-rod camber and toe-in links; however, you have to remove the links to alter their lengths. Molded-plastic, coil-over, oil-filled dampers are found at all four corners. They incorporate a rubber bladder in the cap, have stiff silver springs and are attached to the shock towers and lower arms with snap-on ball studs. Fill the dampers with shock fluid before you run the car; silicone fluid of unspecified weight is included.

A dual-bellcrank assembly with brass bushings steers the GX1 Sport. The bellcranks are attached to the lower chassis plate, and instead of using attachment points on the upper deck, nylon locknuts cinch them down.

BODY, WHEELS AND TIRES. The GX1 Sport kits feature painted Lexan shells with full decal sheets. The body arrives fully decaled, but you'll need to cut engine-cooling holes into the body before you install it. My GX1 Sport came packaged with a beautiful Mercedes CLK GTR body. Painted silver and with a Warsteiner/Mobil 1 sponsor theme, it was complete with molded side-view mirrors, windshield wipers and a Mercedes emblem on the hood.

Rubber V-tread tires with foam inserts and white nylon wheels are included. Pick up some tire glue while you're at the hobby shop, as the wheels and tires arrive unglued.

ELECTRONICS & ACCESSORIES



CEN Mirage III 27MHz transmitter and receiver

The CEN radio features include servo reversing, steering and throttle trim adjustments and dual-rate steering adjustment. A Ni-Cd charging jack is incorporated into the radio's base for optional rechargeable batteries, and an LED power indicator signals low-power problems. The radio performed well, but it has a light, toy-like feel.

CEN G82108 standard servos

CEN's plastic-gear servos do a good job of steering and throttling the GX1 Sport. The 0.22-second transit time and 40 or so ounces of torque are more than adequate for controlling the light GX1 chassis.

Tools

The GX1 Sport comes with an accessory tool pack for maintenance. The package includes a 4-way wrench, L-shaped Allen wrenches, extra body clips, extra shock pistons and ride-height clips.

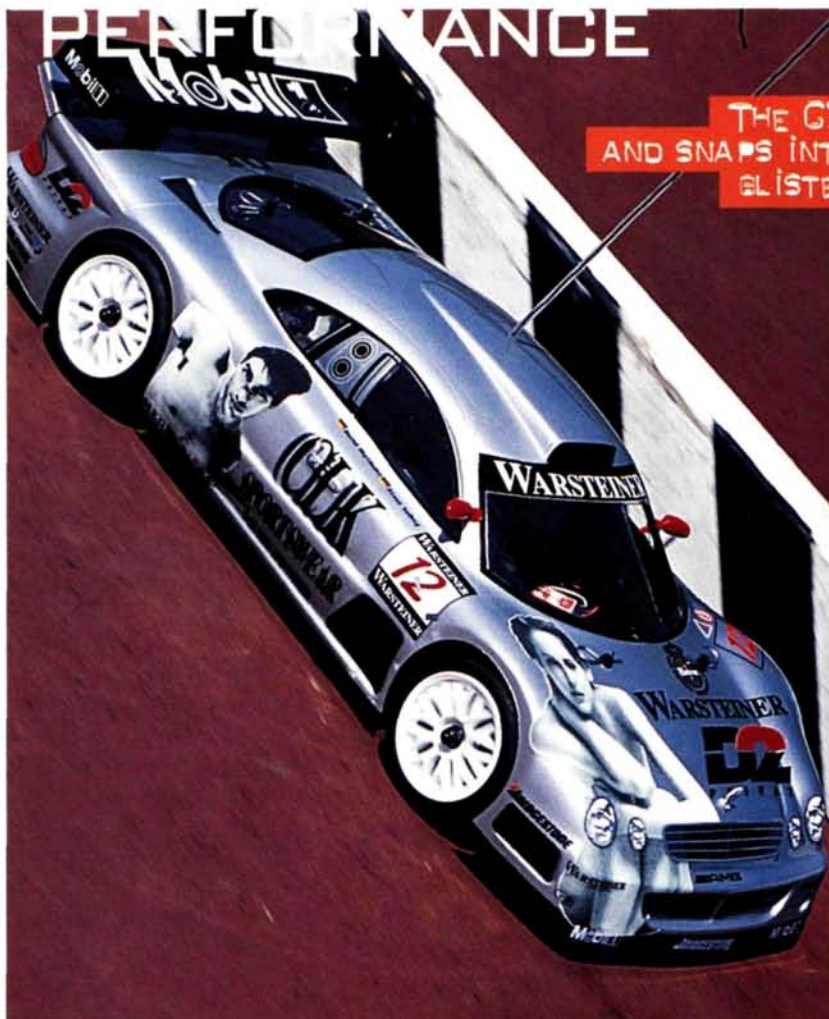
YOU'LL NEED

- 12 AA batteries
- Glow-starter
- Fuel and fuel bottle
- Tire glue

FACTORY OPTIONS

- GP full bearing set—item no. GXS16
- Super Chassis—GXS25
- Carbon-fiber front shock tower—GXS29
- Carbon-fiber rear tower—GXS30
- 55mm Ultra shocks—G84251
- Universal drive shafts—GXS11
- One-way diff—GXS125

*Partial list; additional options available.



THE GX1 SPORT ACCELERATES QUICKLY AND SNAPS INTO SECOND GEAR TO ACHIEVE A GLISTERING 41MPH TOP-SPEED.

The 2-speed transmission is the car's strongest point because it lets the GX1 Sport accelerate quickly and then snap into second gear to achieve a blistering 41mph top speed. It's simple to adjust the 2-speed; a single setscrew controls the shift-point adjustments, but my GX1's transmission was set properly out of the box.

Off the throttle, the GX1 Sport has a hard time coasting smoothly.

The belt drive train felt very stiff out of the box, and although my power-drill break-in method loosened it up, the car still felt as if it had drag brake when off power. It's important to pay close attention to the car's attitude when letting off the gas; it seems to pull to the left or right as the drive train binds. If you can't wait for the bushings to fully break in and don't mind taking the car apart, replacing the GX1's brass bushings with ball bearings would no doubt alleviate the binding.

Even though the car occasionally bounces and hangs up slightly on road debris, the steering and suspension feel is good. Without countersunk screw holes, the flat chassis allows the screws on the bottom of it to scrape the ground when the suspension compresses. The car's overall performance is hardly affected by that, but inspect the lower chassis screws after bashing and replace them before the screw groove has grated away.

The GX1 Sport's tires offer a good combination of durability and traction. I spent a lot of time in the parking lot pulling 360s, bringing the car up to speed and slamming it into full on-power drifts; in general, having as much fun as possible. The GX1 remained in one piece, and the rubber tires showed little wear and tear from my abusive antics.

THE VERDICT

The decision to include a powerful .16 engine and a 2-speed transmission shows that CEN knows what today's RC'ers want—speed! With 41mph on tap, the GX1's velocity will satisfy any potential buyer's need for speed. When you're ready to upgrade the GX1's components, CEN offers a full line of graphite and machined-aluminum parts, as well as bearings and 12 additional body choices. RC'ers who enjoy bashing in parking lots with a nitro touring car will offer CEN's GX1 Sport a good opportunity to shine.

Finding a test site for the GX1 Sport was as easy as stepping outside my front door and going to a freshly paved parking lot in my neighborhood. The lot's large, open area allowed the car to really open up, and big parking lots are where most RTR touring cars will spend their nitro-burning time.

After I ran through a few slightly rich break-in tanks, I opened up the throttle, and the NT-16 sent the car flying. When properly tuned, the NT-16 engine's dual-needle carb allows crisp throttle response at low speeds with plenty of top-end power. After a few minutes of running, engine temperatures were in the high 200 degree F range, and that's completely acceptable for a .16 engine running on 25-percent nitro.

LIKES

- Included 2-speed transmission delivers warp speeds.
- Reliable engine idles well and is surprisingly powerful.
- Good looking red-anodized chassis.

The NT-16 also idles well and provides tank after tank of reliable bashing power. The plastic tuned pipe and aluminum header do a good job of allowing the engine to breathe well, and the pipe's exhaust note is sporty but not too loud—perfect for parking-lot bashing.

DISLIKES

- Isn't really RTR; shocks must be filled and tires glued.
- Radio has a toy-like feel.
- Chassis screw holes aren't countersunk, so underside screws are prone to damage.

SOURCE GUIDE

CEN (714) 792-1923; cenracing.com.

THE COMPETITION

	DRIVE TRAIN	SHOCKS	DIFFERENTIALS	AXLES	RADIO	ENGINE	PRICE**	REVIEWED
CEN GX1 RTR	2-belt/gearbox	Plastic	Bevel gear	Dogbones	CEN Mirage	.16	\$300	8/02
Traxxas Nitro 4-TEC RTR	3-belt	Plastic	Bevel gear	Universals	Traxxas TQ	.15	\$340	TC 2001**
DuraTrax Street Force RTR	3-belt	Plastic	Ball	Dogbones	DuraTrax by Futaba	.15	\$295	TC 2001
OFNA Nitro Z-10 RTR	3-belt	Aluminum	Bevel gear	Universals	Airtronics Blazer Sport	.12	\$250	TC 2001
HPI Nitro RS4 3 RTR	Shaft	Plastic	Bevel gear	Dogbones	HPI by Airtronics	.15	\$290	6/02

Partial listing, category is too large to include all vehicles. **Price varies with dealer. **Radio Control Touring Car 2001.



Car
RADIO CONTROL
car action of the
year 2002
by the staff of Radio Control Car Action

HPI M1C

In last month's "Readers' Choice Awards" feature, we displayed your top favorites; this month, we—the editors—get our turn to vote for the *Radio Control Car Action* 2002 Car of the Year, and with so many significant cars having been released during the past year, it wasn't easy.

We saw exciting new nitro and electric tourers from Team Losi, Associated and Kyosho, but in the end, we all arrived at the same conclusion: the big thing on the 2002 RC car scene is a *small* thing—HPI's Micro RS4.

Not just small:
HPI's Micro
RS4 makes
mini-cars more
affordable,
fast, and fun
than ever
before

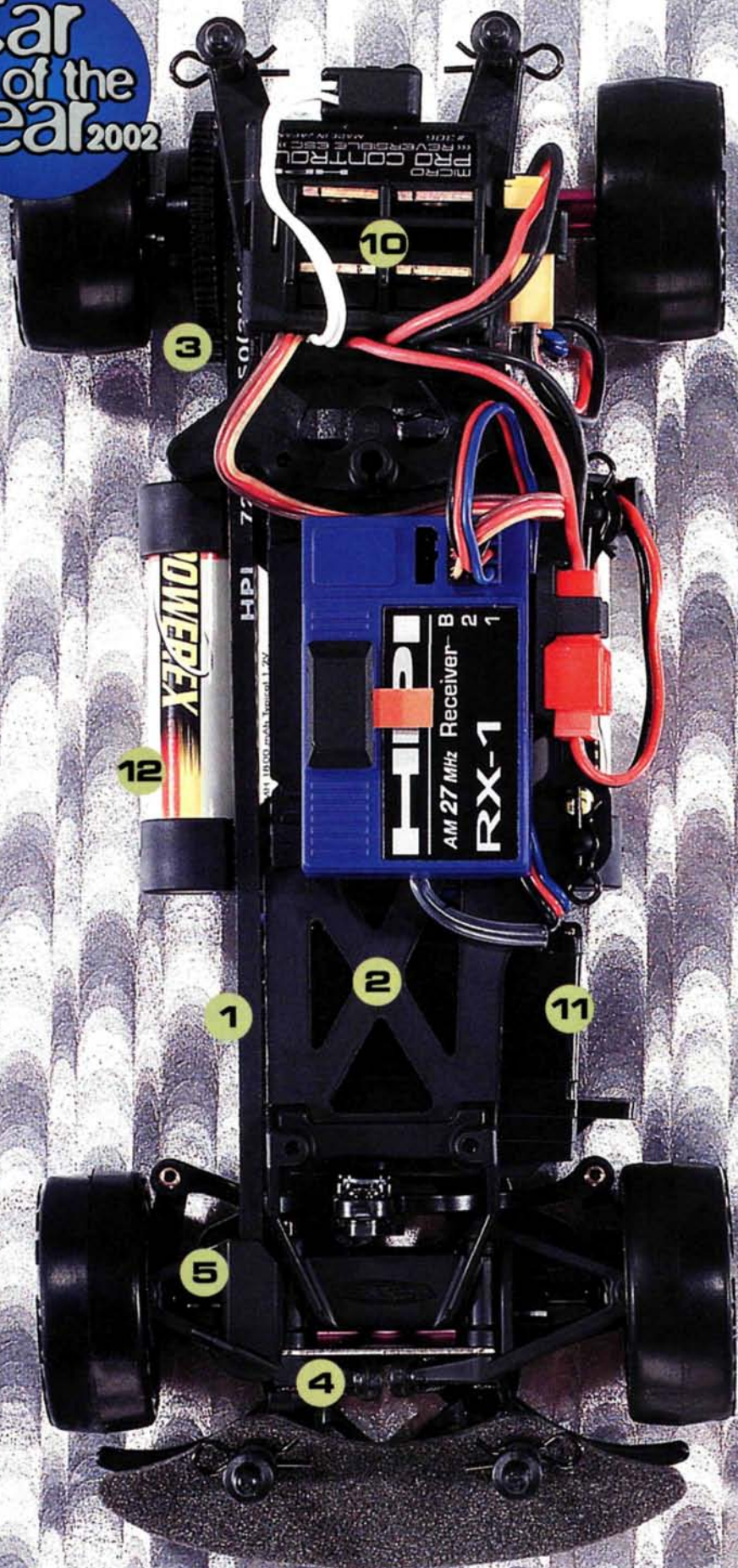


Photos by Walter Sidas and Peter Hall

RC RS4

HPI MICRO RS4

Car
car action of the
year 2002



MICRO FEATURES

1. Single-belt 4WD system
2. Fiberglass chassis
3. Adjustable gear differentials
4. Independent cantilevered front suspension
5. Universal-joint axles
6. Coil-spring rear "shock"
7. Adjustable front and rear widths
8. Aluminum motor mount
9. Foam front bumper
10. Micro Pro Control ESC (RTR)
11. Compatible with full-size servos
12. Accepts AA or AAA alkaline or rechargeable power

WHY IT WON

TREND SETTER

Why is the Micro RS4 our top choice? For us, the Micro RS4 is special because it brings the "big RC" kit experience to a micro machine—right down to a clear body, 4WD with front and rear differentials, and a truly tunable chassis. This micro car doesn't rely on the novelty of its size for its appeal; it's a sophisticated RC machine—one that we think could define 1/18-scale 4WD cars as the micro RC standard.

SMALL SIZE ... BIG PERFORMANCE

The Micro RS4 is an incredibly sophisticated little touring car chassis. Out of the box, it handles well and can be tuned to run on a variety of surfaces, including asphalt and carpet.

Space obviously isn't a problem; build a track on your driveway and race against your buds—no need to leave the yard. Install a few well-chosen hop-ups, and the Micro RS4 will surprise you with speeds that rival those of 1/10-scale sedans.

RELIABILITY

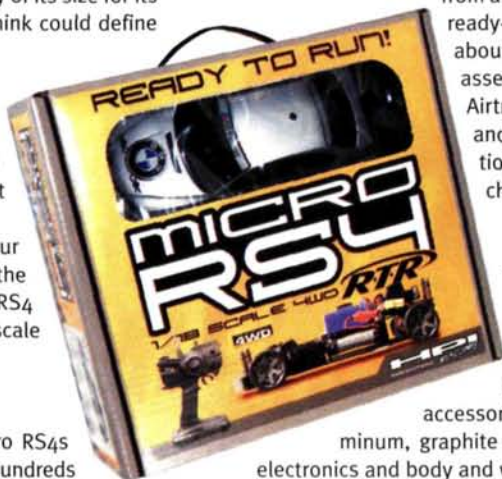
The Micro RS4 is one tough customer! We've seen Micro RS4s being run all day at car shows and RC exhibitions where hundreds of drivers, most of whom had never driven an RC car, took a turn behind the Micro's wheel. Even after days of abuse, the cars kept running.

VALUE

With a street price of under \$100 for the kit, the Micro RS4 is a bargain, especially considering that it accepts electronics of standard size; you won't have to track down a mini- or micro-servo. If you'd rather not swap radio gear from another car into your Micro, you can buy the ready-to-run version shown on these pages. For about \$200, the RTR Micro RS4 arrives fully assembled with a painted body and an installed Airtronics-built HPI TX-1 radio system, motor and MPI Micro ESC. After that, the only additional items you'll need will be batteries and a charger. It's hard to find a better RTR value.

AFTERMARKET SUPPORT

The Micro RS4 kits and RTRs are available at most hobby shops, so finding spare parts and replacement bodies isn't an issue. The Micros are supported by a huge number of aftermarket hop-ups and accessories by many manufacturers. You'll find aluminum, graphite and titanium components, Micro-specific electronics and body and wheel options.



DESIGNER DISCUSSION

Why build an 1/18-scale car? What's next in the Micro RS4 lineup? Will there be a Micro MT? HPI's chief designer, Akira Kogawa, explains all.

RC Car Action: Why did HPI decide to "go micro"?

Akira Kogawa: I was looking for something fun and in the minimum size that we could make an RC car. The inspiration came from looking at 1/18-scale die-cast models and saying "Wouldn't it be great if that was radio controlled ... and 4WD?" There had never been a really good handling small RC car, so our goal was to build the best small car ever—one that would work indoors and outdoors, on slippery surfaces like linoleum and high-grip asphalt. We wanted the car to be fun to drive and to handle as well as our bigger 1/10-scale 4WD touring cars.

New technology also inspired me—really good small electronics and high-capacity NiMH

AA batteries that are easy for beginners to use. We knew we'd be able to make a car that would be as accurate as a bigger car in terms of steering and throttle response, and we knew we could make it run for almost an hour on a single charge.



RCCA: What made you decide to design an 1/18-scale car instead of a 1/24-scale car to follow what seemed to be an emerging trend?

AK: We tested a bunch of small cars and found that the optimum size would be 1/18 scale. That size allowed us to make the car look realistic and also to use full-size radio equipment. Anything small-

er than 1/18 scale is difficult to control on asphalt because the car can't handle the bumps at racing speeds.

RCCA: What's next—after the RTR Micro RS4? Will HPI consider releasing a Pro version for those of us who are willing to

spend more money on a full-option kit?

How about an 1/18-scale off-road vehicle?

AK: That's a tough one! We have so many exciting projects going on at HPI, but we can't really say what they are until they are ready for production. We always want to do fun projects like a Pro version of the Micro; if we can fit one into our schedule, it would be great. As for off-road, you never know! We've had several suggestions for an off-road Micro, and that's another one of those projects that we would love to do if we can fit it in. Our website has a very active forum; if enough customers let us know they want something, it really helps us when it's time decide which project to do next.

RCCA: Well, we say build both! Come on! Thanks for the insights Akira. ■

SOURCE GUIDE

HPI RACING (949) 753-1099; hpiracing.com.

BY GREG VOGEL & PETER VIEIRA

LRP to Offer Lifetime Warranties on ESCs & Chargers

If you bought an ESC or a charger from LRP in February 2002 or beyond, you're in luck: LRP has extended its warranty on these items to "lifetime" status! A serial number embossed on the case of each charger and ESC identifies it as a lifetime-warrantied item, and LRP promises no-cost replacement of any item that fails due to a defect (if you toast your ESC or charger due to neglect or abuse, that isn't covered; duh).



Fast Finn and Ballistic Brit Join XRAY Squad

IFMAR Worlds and European Off-Road A-finalist Teppo Kaupinen (Finland) and European Touring Car A-finalist Chris Grainger (UK) have joined Team XRAY to "showcase the best racing results and to prove the true potential of XRAY T1." XRAY also hinted that Teppo and Chris will be working on other projects in the near future but wouldn't reveal what those projects entail. We're rooting for an off-road car.

SITE SEEING



durango.rc10.de/

If you're wondering how Mark Pavidis managed to wheel a Dodge Durango to a sixth-place finish in 4WD at the Worlds, well, you've got your Durangos mixed up. The Durango Mark drove isn't a sport-ute with a giant gap between the bumpers and bodywork; it's a German machine that combines Schumacher CAT and Associated TC3 parts with a lot of hand-made machined components to create a unique four-wheeler. See for yourself.

IFMAR ELECTRIC WORLDS Losi sweeps Off-road, Tamiya takes Touring



2WD, 4WD Gold for Losi's Francis and Steenari

Team Losi drivers made history at the 2002 IFMAR Off-Road World Championships by taking the top-qualifying position and finishing first and second in both the 2WD and 4WD classes. This year's event, held in Pretoria, South Africa, marks the first time a single RC car manufacturer has won and TQ'd every class at the most prestigious off-road event in the world. Matt Francis and his Trinity-powered Team Losi Triple-X4 prototype and Triple-X buggies took the top-qualifying positions in both 4WD and 2WD, and Matt went on to win the 2WD class with teammate Brian Kinwald in tow.

Jukka Steenari, the 2000 IFMAR 4WD champ and Team Losi's newest engineer, repeated as the 4WD World Champion using Orion power in his Double-X4.

2WD FINAL STANDINGS

Fin.	Qual.	Driver • country • chassis • power	A-main 1	A-main 2	A-main 3
1	1	Matt Francis • USA • Losi • Trinity	1	3	1
2	3	Brian Kinwald • USA • Losi • Trinity	3	2	3
3	2	Neil Cragg • Great Britain • Associated • Reedy	4	1	4
4	5	Travis Amezcua • USA • Losi • Peak	8	4	2
5	6	Mark Pavidis • USA • Associated • Reedy	2	10	6
6	7	Brian Dunbar • USA • Losi • Fantom	5	6	8
7	4	Billy Easton • USA • Associated • Reedy	9	5	7
8	9	Adam Drake • USA • Losi • Trinity	6	7	10
9	10	Craig Drescher • Great Britain • Associated • Reedy	10	8	5
10	8	Greg Hodapp • USA • Losi • Peak	7	9	9

4WD FINAL STANDINGS

Fin.	Qual.	Driver • country • chassis • power	A-main 1	A-main 2	A-main 3
1	2	Jukka Steenari • Finland • Losi • Team Orion	2	1	1
2	1	Matt Francis • USA • Losi • Trinity	1	2	5
3	6	Greg Hodapp • USA • Losi • Peak	4	6	2
4	3	Travis Amezcua • USA • Losi • Peak	3	3	6
5	8	Dave Montgomery • USA • Losi • Team Orion	6	8	3
6	5	Mark Pavidis • USA • Durango • Reedy	9	5	4
7	9	Peter Pinisch • Austria • Losi • Reedy	7	4	7
8	10	Neil Cragg • GB • Schumacher • Reedy	5	7	9
9	7	Todd Hodge • USA • Losi • Trinity	8	10	8
10	4	Craig Drescher • GB • Schumacher • Reedy	10	9	10

On-Road Upset! Tamiya Takes Touring Worlds

Tamiya earned its first-ever World Championship title, thanks to Thailand's fast (and unpronounceable) Surikarn Chaidajsuria, who drove his Reedy-powered TRF 414M II to third-, second- and first-place finishes in the three A-mains to win the title (which makes a staggering 24 IFMAR Worlds victories for Reedy power). Barry Baker, Billy Easton and Chris Tosolini were the Americans in the show, at which Barry TQ'd with his TC3. He could have won it all, but he damaged his car in a crash during the final laps of the third Main.

In 1/12 scale, Masami Hirosaka proved he still has the World Champ mojo by TQ'ing the class and winning the first two A-mains. This earned Masami the right to sit out the third Main as the rest of the field battled for the lower podium steps.

TOURING CAR FINAL STANDINGS

Fin.	Qual.	Driver • country • chassis • power	A-main 1	A-main 2	A-main 3
1	3	Surikarn Chaidajsuria • Thailand • Tamiya • Reedy	3	2	1
2	1	Barry Baker • USA • Associated • Reedy	2	1	9
3	5	Atsushi Hara • Japan • HPI • Team Orion	1	4	7
4	2	Masami Hirosaka • Japan • Yokomo • Reedy	10	3	2
5	6	Chris Tosolini • USA • Yokomo • Fantom	4	10	3
6	7	Jilles Groskamp • Holland • XRAY • Peak	5	6	6
7	10	Billy Easton • USA • Associated • Reedy	8	7	4
8	4	David Spashett • GB • Losi • Trinity	6	5	8
9	8	Shinnosuke Adachi • Japan • Yokomo • Reedy	9	8	5
10	9	Masayuki Muira • Japan • Tamiya • Reedy	7	9	10

1/12 FINAL STANDINGS

Fin.	Qual.	Driver • country • chassis • power	A-main 1	A-main 2	A-main 3
1	1	Masami Hirosaka • Japan • Yokomo • Reedy	1	1	DNS
2	2	David Spashett • GB • Trinity • Trinity	3	2	4
3	3	Chris Tosolini • USA • Yokomo • Fantom	2	4	3
4	4	Sinnosuke Adachi • Japan • Yokomo • Reedy	5	5	2
5	7	Sakke Ahonemi • Finland • Corally • Corally	6	6	1
6	5	Hideo Kitazawa • Japan • Yokomo • Reedy	4	3	8
7	8	Markus Möbers • Germany • Corally • Corally	7	7	5
8	9	Andrew Moore • GB • Trinity • Trinity	9	9	7
9	6	Paul Lemieux • USA • Trinity • Trinity	8	8	10
10	10	Simo Ahonemi • Finland • Corally • Corally	10	10	6

SPEED SHOP



O.S. ENGINES T-1030 tuned pipe

Check out the new tuned pipe from O.S. for .12 to .15 engines. The 1030 pipe is well crafted with smooth welds in the center of the chamber and on the stinger. The pipe is predrilled for the included pressure tap. It not only looks great but will also help increase the performance and efficiency of any engine.

T-1030 pipe—item no. 72103030; \$64.99.

O.S.; distributed by Great Planes (800) 682-8948; greatplanes.com; osengines.com.

R/C RAGE Turbo Ram Backplate



Check out this bolt-on power adder from R/C Rage. The Turbo Ram backplate is an aluminum replacement available for Novarossi .12, .15, .21, and .12 Picco/Collari engines. The plate has an internal collector directly in line with the crank's induction bore. Two bores in the plate connect to the collector and channel fuel directly to the transfer ports. R/C Rage claims that with the addition of the plate, you will notice more response off the line and an increase in smoother power throughout the power band. R/C Rage plate for Nova .12 engines (race version)—PNE12001; \$60. R/C Rage (281) 350-8080; RCRage.com.

TRINITY Microcell Air Filter kits

To run at optimum efficiency, engines need a clean source of air. Microcell filters are an excellent way to keep air passages open and dirt out. They feature a large foam element glued to a solid rubber base for large bore .12 carburetors. Each box contains two filters and two tubes of air-filter oil. .12 large-bore carb filter—30FAT2K; \$9.99. Trinity Products (732) 635-1600; teamtrinity.com.



GH Nitro TC3 pinion gears

Golden Horizons offers precision-machined aluminum pinion gears for the Nitro TC3. Each gear is machined from 7075 aluminum and either left in its natural silver aluminum color (20 and 21 tooth) or color-coded for tooth count in anodized black (22T), gold (23T), blue (24T), purple (25T), green (26T) and red (27T). GH pinions, 20- to 27-tooth—GH02402-09; \$6.49 each. Golden Horizons (604) 207-2108; ghhobby.com.

TRACK THREADS

TRINITY Flex-Fit Hat

Whether you want to keep the sun out of your eyes, just look cool, or hide the fact that you are losing your hair, you should check out Trinity's new flex-fit baseball cap. The cap sports a bright yellow, embroidered, Trinity triple-circle logo, and the Flex-Fit band means you won't have to deal with a wack plastic-sizing-strip thingle.

Flex-fit hat—RC9798 (S & M); RC9799 (L to XL); \$17.99.

Trinity Products Inc. (732) 635-1600; teamtrinity.com.



UNDER THE HOOD

Brian Burkhardt RaceTech MacAttack

EQUIPMENT USED

Radio system: Airtronics M8
Steering servo: Airtronics 94145
ESC: Keyence Zero-V Extreme
Battery: SMC Sanyo 3000HV
Receiver pack: SMC prototype
Motor: Team Luna 9 single (Reedy Ti-based)

Tires: Jaco black-compound fronts; white rears
Body: Protoform High Downforce Monte Carlo
Paint: Brian Chudy

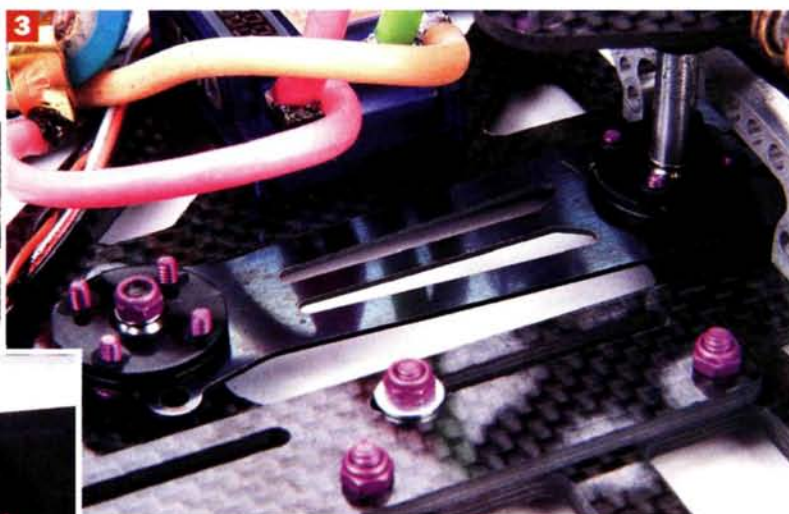
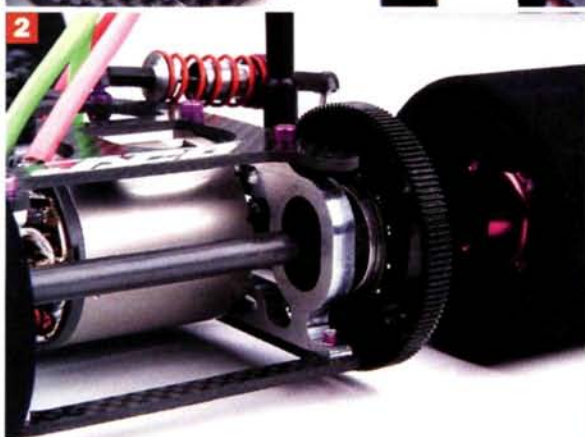
SETUP	FRONT	REAR
Ride height	1 graphite spacer	Middle position
Tire diameter (mm)	55.7	55.7
Camber (L/R)	+1°/-2°	—
Toe-in	0°	—
Center shock oil/spring	—	60WT/red
Side shocks oil/spring	—	35WT/right red, left gold
Pod offset	—	Centered
Front springs	Wolfe Motorsports, white	—

FACTORY OPTIONS

- RaceTech Team Series upper-arm mounts
- RaceTech 4-cell battery tray with transponder mount and receiver deck

MODIFICATIONS

- Wolfe Motorsports graphite rear axle
- HPI center shock
- IRS hubs
- Wolfe Motorsports kingpins
- TRC spring-steel T-plate



1. The aluminum upper-arm mounts are from RaceTech, and Brian also added spacers between the lower-arm and upper-arm mounts to further alter the stock suspension geometry.

2. What oval guy doesn't use Kimbrough gears? Brian also installed IRS hubs and a Wolfe Motorsports graphite axle.

3. This spring-steel T-plate is from TRC. Unlike fiberglass, it won't go "soft" after repeated flexing.

LAST LAP

Who is going to win the IFMAR On-Road and Off-Road Worlds, and why do those drivers have the edge?

I think Matt Francis will win because he has been winning almost every event he enters.
Marko Meglen

I hope Scott Brown will attend and win because he works at my local racetrack, and he helps me dial in my XXX-T. Scott is a great pro racer.
Glen Antonov

I'm not sure who will win the Worlds because I have just started following racing events, but I think that if Jukka Steenari

attends, he has a good shot at winning.
Edward Velarde

Paul Lemieux for on-road and Matt Francis in off-road because those guys just rule, and Team Losi is the best RC manufacturer, in my opinion.
Philippe Langevin

David Spashett all the way, baby! He's got some serious edge to win anything, anywhere, anytime.
Brandon Kelter



FACTORY DRIVER HOT MOD

In 4-cell racing, every volt counts. Like many of oval's top guns, Brian runs a separate receiver pack so the primary battery has to power only the motor. SMC may offer this micro-pack as an over-the-counter item.

5 QUESTIONS

DRIVER: Brian Burkhart

AGE: 27

LAST BIG WIN: 2002 Snowbird Nats, 19T and 4-Cell Pro Mod champ

SPONSORS: Jaco, SMC, RaceTech, Team Luna motors, Protoform, IRS, Airtronics, Keyence, Wolfe Motorsports

WHEN I'M NOT RACING, I: play a lot of softball, go to NASCAR races and just try to stay busy. If you're in Elkridge, MD, you might spot me riding my Yamaha R1.



RC CAR ACTION: What would you say is the most misunderstood thing about oval racing?

BRIAN BURKHART: That it's easy! I have a lot of respect for on- and off-road racers, but look at what happened to Paul Lemieux when he tried to run oval at the Snowbirds; he wasn't anywhere in the ballpark. It's easy to drive an oval car, but it's a whole 'nother thing to be fast.

RCCA: How do you reply to someone who says that it's all about the car, and even if you have the skill, you need the right equipment to win?

BB: Everybody thinks that it's the best batteries and the best motors that win an oval race, but quite honestly, it's not even close to that—especially with the advent of 4-cell oval racing.

RCCA: So you're a fan of 4-cell?

BB: Absolutely. It's going to single-handedly save oval racing. I think the 6-cell classes at the Snowbirds were a waste of time; the cars weren't a whole lot faster. I had the fastest 4-cell car and ran 4.1s; the fastest 6-cell cars were running 3.9s. For the extra work the 6-cell cars require, it really isn't worth the time and effort. It's something the factory guys almost have to run if they offer it, simply because it's supposed to be the fastest class, but I think winning 4-cell was 10 times more prestigious than winning 6-cell.

RCCA: What do you think of 1/2 oval?

BB: The little cars are a lot of fun when you're racing with the right people. I'm gonna run 1/2 scale next year at the Snowbirds, simply because I don't think I'll be too welcome in a 1/10 class anymore. The 4-cell 1/2 cars are actually more difficult to drive than 4-cell 1/10 scale, but 1/2 can be a lot of fun.

RCCA: How do you like the Keyence Zero-V Extreme speed control? Do you really use all the adjustments it offers, or are you a plug-it-in-and-go kind of guy?

BB: Quite honestly, I think it's the best speed control on the planet right now. It's the only ESC whose features I've been able to use and actually feel a difference on the track. Drive frequency, brake frequency ... I use all that stuff. It's a good speedo.

RCCA: And you definitely use it well! Good luck, and thanks for sharing your car with us.

Kinwald rules! He will win truck and buggy because he practices and races at Socal raceway, and they have the best off-road track—better than anywhere else! He is also the best under pressure;

anyone will tell you that.
Jimmy Willis
[Hey Jimmy, they don't race trucks at the Worlds—Ed.]

NEXT MONTH'S QUESTION

Why do you race 4WD buggies? Why *don't* you race 4WD buggies? Tell us what the class has to offer, or what you think it needs.

Respond by clicking "Last Lap" at www.rccaraction.com.

SOURCE GUIDE

AIRTRONICS (714) 978-1895; airtronics.net.

HPI RACING (949) 753-1099; hpiracing.com.

IRRGANG RACING SERVICE (IRS) (609) 476-2371.

JACO (540) 298-7706.

KEYENCE CORP.; distributed by Schumacher USA (813) 889-9691; racing-cars.com; keyence.co.jp.

KIMBROUGH PRODUCTS (714) 258-7425; kimbrough-products.com.

PROTOFORM INC.; distributed by Pro-Line (909) 849-9781; pro-lineracing.com.

RACETECH/BOLINK (770) 963-0252; bolink.com.

SMC (540) 298-7706; smc-racing.com.

TEAM LUNA (916) 783-8864.

TRC; distributed by Team Trinity (732) 635-1600; teamtrinity.com.

WOLFE MOTORSPORTS (865) 693-4665; wolfemotorsports.com.

WINTER CHAMPIONSHIPS

The 16th Annual

SPONSORED BY: ASSOCIATED ■ PRO-LINE ■ RADIO CONTROL CAR ACTION

by Rick Eyrich

One of the longest-running electric 1/10-scale off-road races in the U.S., the West Coast R/C Club-run Winter Championships in Tampa, FL, is also considered by many to be the first "Big Show" of each new racing season. The 2002 show was a big event, but Mother Nature had her say in it.

Because of some very un-Florida-like weather, this year's Winter Champs had to be condensed into what was basically a single-day race. Heavy rains washed out nearly two entire days of qualifying, so the Mains were determined by only two rounds of heat races. As for the main-event schedule, it was necessary to run single A-mains in the modified classes over the original three-Main setup, but with the minimal time remaining, no one minded this switch very much!

Even with its limited race program, the 2002 Winter Championships showcased some of the best off-road racers around, and considering the weather, the West Coast R/C Club members supplied them with a great track on which to compete. We congratulate the winners and send special thanks to Team Associated and Pro-Line for their sponsorship of this year's event. ■



1. After placing third in the Stock Truck division, Andrew Swanson (center) took home the winner's trophy for the Stock 2WD buggy A-main. Kent Hadrick (left) claimed the runner-up spot, while Dorry Autin drove his Losi XXX to third place.

2. In the 4WD modified final, Rick Hohwart (left) took second, Matt Francis (center) won, and Travis Amezcua (right) came in third overall.

3. With each driver running on a 10-lap pace, the top three finishers in the Stock Truck class final had good reason to smile after picking up their awards! Taking the top spot was Josh Knight (center), and he was followed by Joe Pillars, (left) and Andrew Swanson (right) was in third.

4. Besides being the TQ winner, Brian Kinwald took the lead in the Mod Truck Main and never looked back on his way to the win. Close racing between Matt Francis (left) and Travis Amezcua (right) ended with Matt in second and Travis third overall in Modified Truck.

5. In winning his first A-main of the 2002 Winter Champs, 2WD driver Matt Francis had to beat Travis Amezcua (left) and longtime Team Associated racer Mark Pavidis (right) to garner the Mod 2WD Buggy title.





WINTER CHAMPS WINNERS

STOCK TRUCK

FIN	QUAL	DRIVER	CHASSIS	MOTOR	BATTERY	ESC	RADIO	BODY	TIRES
1	1	Josh Knight	Losi Triple-XT	Handout	Peak	LRP	Airtronics M8	Fury	Handout
2	3	Joe Pillars	Losi Triple-XT	Handout	Peak	LRP	Airtronics M8	Fury	Handout
3	2	Andrew Swanson	Losi Triple-XT	Handout	Team Orion	Novak	Airtronics M8	Losi	Handout

STOCK 2WD BUGGY

FIN	QUAL	DRIVER	CHASSIS	MOTOR	BATTERY	ESC	RADIO	BODY	TIRES
1	1	Andrew Swanson	Losi Triple-XT	Handout	Team Orion	Novak	Airtronics M8	Losi	Handout
2	6	Kent Hedrick	Assoc. FT T3	Handout	World Class	LRP	Airtronics M8	Protoform	Handout
3	9	Corry Autin	Losi Triple-XT	Handout	Peak	LRP	Airtronics M8	—	Handout

MODIFIED TRUCK

FIN	QUAL	DRIVER	CHASSIS	MOTOR	BATTERY	ESC	RADIO	BODY	TIRES
1	1	Brian Kinwald	Losi Triple-XT	Trinity	Trinity	Novak	Airtronics M8	Losi	Losi
2	4	Travis Amezcua	Losi Triple-XT	Peak	Peak	Novak	Airtronics M8	Losi	Losi
3	9	Matt Francis	Losi Triple XTMF	Trinity	Trinity	LRP	Airtronics M8	Fury	Losi

MODIFIED 2WD BUGGY

FIN	QUAL	DRIVER	CHASSIS	MOTOR	BATTERY	ESC	RADIO	BODY	TIRES
1	3	Matt Francis	Losi Triple-XT KE	Trinity	Trinity	LRP	Airtronics M8	Losi	Losi
2	5	Travis Amezcua	Losi Triple-X	Peak	Peak	Novak	Airtronics M8	Losi	Losi
3	2	Mark Pavidis	Associated B3	Reedy	Reedy	LRP	Airtronics M8	Pro-Line	Pro-Line

MODIFIED 4WD BUGGY

FIN	QUAL	DRIVER	CHASSIS	MOTOR	BATTERY	ESC	RADIO	BODY	TIRES
1	1	Matt Francis	Losi Double-X4	Trinity	Trinity	LRP	Airtronics M8	Stock	Losi
2	5	Rick Hohwart	Losi Double-X4	Peak	Peak	Novak	Airtronics M8	Losi	Losi
3	2	Travis Amezcua	Losi Double-X4	Peak	Peak	Novak	Airtronics M8	Losi	Losi



This Pro-Line blue-groove tire is so new that it has yet to be named.



Built up from a handful of old buggy parts and a Tamiya body, this mini-monster truck was on the track after the race program, and it handled the jumps pretty well, considering its small size!





by George M. Gonzalez

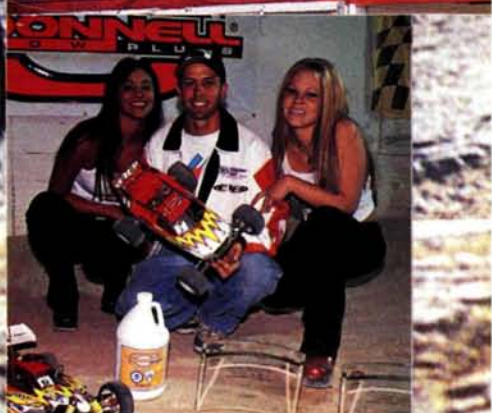
2002 SILVER STATE NITRO

Team Kyosho's Yuuichi Kanai traveled all the way from Japan. I hear that he's a real babe magnet. Eat your heart out, Matt Francis!





CHALLENGE

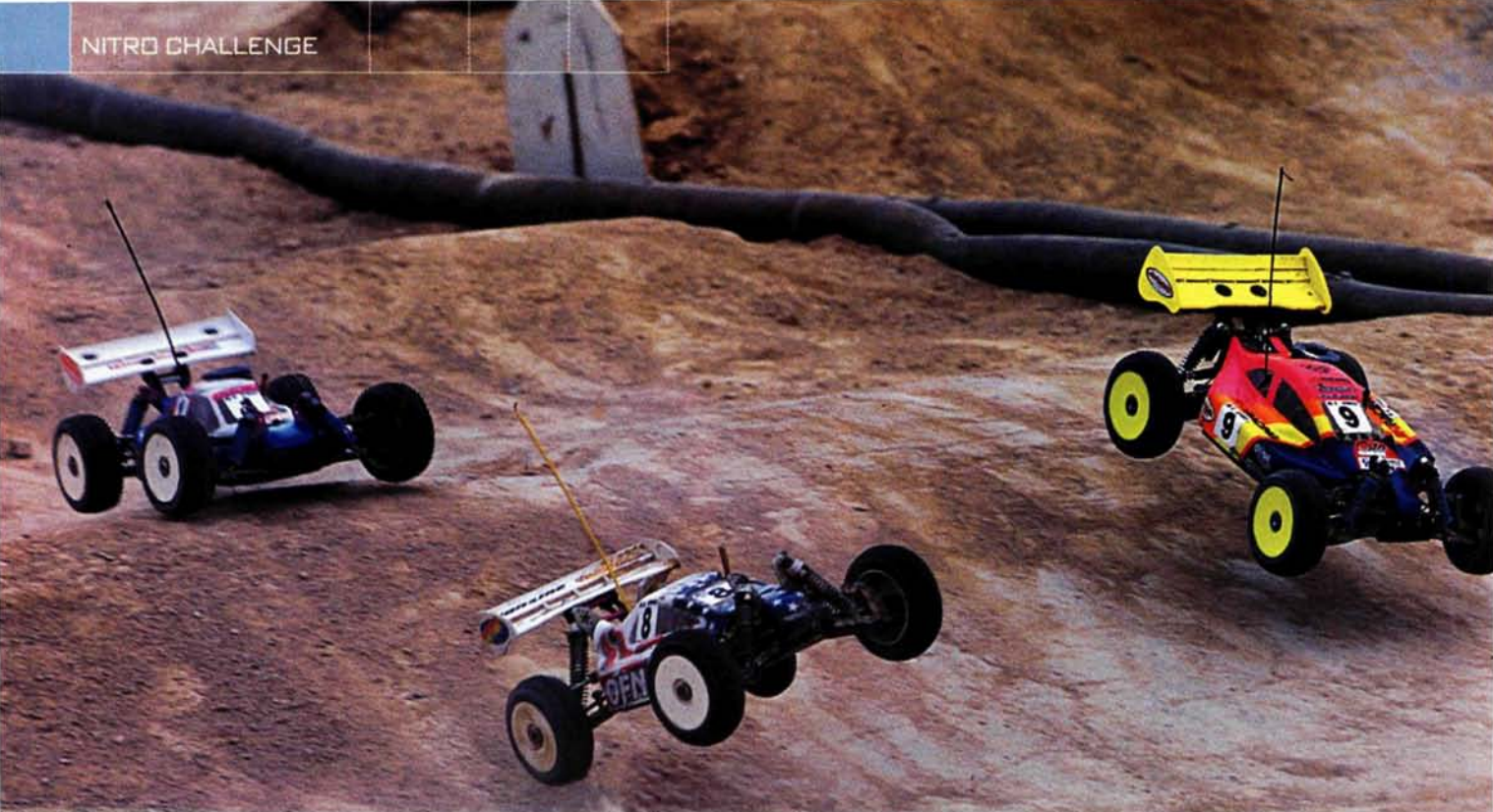


EASTON WINS THE JACKPOT IN VEGAS



EVERY YEAR IN THE SPRING, the top names in nitro off-road racing travel to Las Vegas to attend the Silver State Nitro Challenge. This has always been an important venue because it serves as a warm-up race for the ROAR Off-Road Fuel Nats and

the IFMAR Worlds, which this year, will be held in Uruguay. For the first time, the Challenge is part of the new RC Pro Series—a series of off-road nitro races held throughout the U.S. In 2003, the Pro Series final will be held in Vegas and will replace the Challenge. (The Western RC facility and the Las Vegas RC Car Club will probably be the hosts again, though.)



Many of the larger teams had trailers or motor homes to provide shelter from the heat and the sudden wind gusts that propelled dust everywhere. Here, Team Trinity/Losi's Matt Francis takes cover alongside Peak's Rick Hohwart.

Because this was technically the last "Challenge," entrants signed up in a hurry and the promoters saw record attendance. With tougher than usual competition, Billy Easton took back-to-back wins for Team Associated and Thunder Tiger in both 1/10-scale Truck and 1/8-scale Buggy. Now that you know the ending, here's the story from the beginning.

Diehard football fans may recognize this guy. He's Reggie Tongue, the strong safety for the Seattle Seahawks. Reggie loves nitro RC and races frequently to get his mind off tackling running backs. He pitted next to the madman himself, Jeremy Kortz.



QUALIFYING & A-MAIN OVERVIEW

• **1/10-scale Truck.** Billy Easton was on fire during qualifying. He posted a TQ time that was one lap faster than the rest of the field, so he would obviously be a threat during the Main. In nitro racing, however, the fastest driver doesn't always win; a lot can happen during a 45-minute race. Apparently, Easton does not subscribe to common wisdom; he took the lead in the first lap and never gave up that position.

After the first 10 minutes, he settled into a controlling lead and drove conservatively, realizing that he was without a real challenger. Meanwhile, Team Associated/Kyosho drivers Richard Saxton, Jared Tebo, Jason Ayers and Team Trinity/Team Losi driver Matt Francis battled for second and third. After several pit stops and 45 minutes of racing, Easton rolled in with a cushy two-lap lead to claim the Silver State Nitro Challenge 1/10-scale Truck Championship. Saxton stormed in next, and Francis crossed the line one lap after Saxton to take third.

• **1/8-scale Buggy.** Team Kyosho's Greg Degani was TQ, but it didn't come easy; Kyosho's Richard Saxton, TTR's Billy Easton and Jared Tebo and Kyosho's Jeremy Kortz all qualified on the same lap and less than 1 second apart. Close racing!

Drivers found couches and tables at a nearby dump and made this little trackside "living room." Quite a few spectators dropped by, too!



In the Main, Degani took the lead early, but Easton pursued him closely, and they took their first pit stop almost simultaneously—a stroke of luck for Saxton, who sneaked by and held the lead for a couple of laps. They settled into a groove: Easton and Degani followed by Saxton.

During the last 15 minutes, the heat was on: Easton and Degani repeatedly swapped the lead and put on a battle that had excited spectators screaming and jumping. After a mad dash for the finish line, it was Easton in first for back-to-back Silver State Nitro Challenge championships. Degani rolled in a few seconds later, and third finisher Saxton trailed in two laps behind.

WRAP-UP

Whether you raced or watched, this event was unforgettable. Onlookers constantly surrounded the track, and the folks at Western RC set up a challenging track—one that kept the racers on their toes—and managed the event very capably. We congratulate Team Associated/Thunder Tiger pilot Billy Easton for his impressive victories. Next year, the event will have a completely new flavor as the Pro RC Series Grand Final in Las Vegas, but it's sure to be just as intense. Hope to see you all there next year. ■

BILLY CLUBS

Ever wonder what kind of magic pro racers build into their cars so they can win races? Well, I hate to break it to you, but it really is the driver who does the winning! Still, it is fun to check out the first-place hardware, so here's an up-close-and-personal with Billy's Thunder Tiger EB4-S2 and Associated Factory Team GT.



Billy's EB4-S2 shows more personal touches. Note that Billy sets up his O'Donnell-modified RB engine's carburetor so that the slide is pushed open rather than pulled. The receiver box and battery hold-down positions have been swapped to bring the battery closer to the chassis' centerline, and a heavy-duty aluminum steering-servo horn makes certain all of the servo's yank makes it to the steering arms.

Billy Easton preferred to pit outdoors. Looks as if he's preparing his EB-4 S2 buggy for the 45-minute A-main. His efforts paid off with wins in both classes.

✓ If Billy's Factory Team GT looks pretty much stock, that's because it is! Even the pipe is a kit part. Check out all the goo on the chassis; that's what you get after 45 minutes of racing. Of course, you only make it to the 45-minute mark if your truck is bulletproof, and that's why Billy double-clip-ties both ends of the exhaust coupler and runs a receiver cover to keep the aforementioned goo out of the works.



1/10-SCALE GAS TRUCK

FIN.	QUAL.	DRIVER	CHASSIS	ENGINE	PIPE	FUEL	TIRES	RADIO
1	1	Billy Easton	Associated FTGT	RB/O'Donnell	Associated	O'Donnell	Pro-Line	Airtronics M8
2	2	Richard Saxton	Associated FTGT	RB/O'Donnell	Associated	O'Donnell	Treadz/Losi	JR R1
3	10	Matt Francis	Losi XXX-NT	Pico/Trinity	Losi	Trinity	Pro-Line/Losi	Airtronics M8
4	4	Jared Tebo	Associated FTGT	Mugen/O'Donnell	Associated	O'Donnell	Pro-Line	Airtronics M8
5	8	Allen Home	Associated RC10GT	Mugen/O'Donnell	O'Donnell	O'Donnell	Pro-Line	Airtronics M8
6	6	Mark Pavidis	Associated FTGT	RB/O'Donnell	Associated	O'Donnell	Pro-Line	Airtronics M8
7	9	Travis Amezcua	Losi XXX-NT	Team Orion	Losi	Team Orion	Losi	Airtronics M8
8	7	Adam Drake	Losi XXX-NT	Pico/Trinity	Associated	Trinity	Losi	Airtronics M8
9	5	Jason Ayers	Associated FTGT	O.S.	O'Donnell	O'Donnell	Pro-Line/Treadz	Airtronics M8
10	3	Ryan Cavalieri	Losi XXX-NT	Team Orion	Associated	Team Orion	Losi	Airtronics M8

1/8-SCALE BUGGY

1	3	Billy Easton	TTR EB-4 S2	RB/O'Donnell	O'Donnell	O'Donnell	Pro-Line	Airtronics M8
2	1	Greg Degani	Kyosho MP 7.5	O.S./O'Donnell	RB	O'Donnell	Pro-Line	Futaba 3PJ
3	2	Richard Saxton	Kyosho MP 7.5	RB/O'Donnell	O'Donnell	O'Donnell	Treadz	JR R1
4	0	Yuuichi Kanai	Kyosho MP 7.5	RB	RB	O'Donnell	Kyosho	Futaba 3PJ
5	7	Ryan Cavalieri	Kyosho MP 7.5	O.S.	Paris	Team Orion	Pro-Line	Airtronics M8
6	6	Mark Pavidis	Kyosho MP 7.5	RB/O'Donnell	O'Donnell	O'Donnell	Pro-Line	Airtronics M8
7	4	Jared Tebo	TTR EB-4 S2	RB/O'Donnell	O'Donnell	O'Donnell	Pro-Line	Airtronics M8
8	8	Dave Henry	Kyosho MP 7.5	O.S.	Kyosho	O'Donnell	Pro-Line	Futaba 3PJ
9	5	Jeremy Kortz	Kyosho MP 7.5	O.S.	Kyosho	Sidewinder	Pro-Line	JR R1
10	9	Jason Ashton	Mugen MBX	O.S.	RB	O'Donnell	Pro-Line/Treadz	Airtronics M8

Go Big!

We install XTM Racing's big block T-Maxx kit and 24.7 engine

One of the latest T-Maxx trends is to upgrade to a big-block engine. Many conversion kits are available, but the new big-block conversion kit from XTM is sure to be very popular because it's the most complete. Not only do you have a choice of blue- or red-anodized parts, but the one-box kit also includes a long-wheelbase chassis, extended lower braces, engine mounts, an exhaust system and more.

We completed the kit with XTM's new bigger-than-big "24.7" powerplant for white-knuckle rip, but the same steps would apply for a .21 engine. Here's how to install the setup on your T-Maxx.

8 steps to more horsepower by Kevin Hetmanski

WHAT YOU'LL GET

- Extended aluminum chassis
- Extended aluminum chassis braces
- Steel universal drive shafts for all axles and gearboxes
- Adjustable aluminum engine mounts
- Header and tuned pipe
- Tuned-pipe mount
- Air cleaner
- Clutch nut for stock flywheel and clutch
- Throttle and brake linkages
- All necessary mounting hardware
Item nos. 233301 (red), 233302 (blue); \$149.99.

WHAT YOU'LL NEED

- Big-block rear-exhaust pull-start engine (.21 to .24)
- Fuel line



XTM 24.7 PULL-START ENGINE

Bigger is better, right? That's what the engineers at XTM think. They have just introduced a new .24 engine that is sure to get you the win in the "mine is bigger than yours" contest. It features ABC construction, a 2-needle carb, a large heat-sink head and a compact pull-start mechanism. This big block puts out a claimed 2.6hp and 28,000 peak rpm. Item no. 146028; \$139.99.



Step 1 Clean and inspect.

It's no fun to work on a dirty truck, so before you start to bolt on new stuff, pull off your Maxx's wheels, and hose it down with denatured alcohol or a nitro-specific car cleaner. When it's clean, check for damaged and worn parts, and replace or repair them as you install the big-block kit.



Step 2 Disassemble. Remove the front and rear suspension assemblies, engine, header and tuned pipe, fuel tank, receiver and battery boxes, servos, lower chassis braces and transmission; you'll be left with a bare chassis. Take time to inspect and clean all the parts you removed; look for components that are worn and need to be replaced. If you plan to add hop-ups other than the conversion kit, it's a good idea to get those parts lined up for installation along with the conversion components.

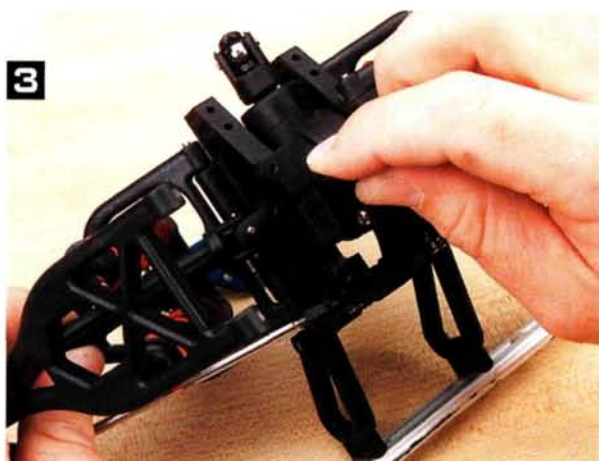
2



Step 3 Swap axles. The kit includes four universal axles that have threaded outer ends to which the wheels are attached and two center drive shafts to get power from the tranny to the diffs. Replace the stock telescoping universals with the heavy-duty XTM steel universal shafts.

To ease axle replacement, remove the inner hinge pin that holds each lower suspension arm in place. Pull the threaded end of the stock axles from each of the four hubs; then loosen the setscrew that attaches the stock drive shaft to the diffs so you can completely remove them. Grooves in the bottom of each of the stock bulkheads allow easy access to the setscrews.

Slide the new, steel drive cups for the universals onto the differential output shafts. Put a little thread-locking compound on the threads of the setscrews that hold the new drive cups in place, install the setscrews and tighten them. Fit the threaded end of the universals into the hubs, align the dogbone ends in the drive cups that you just attached to the diff, then reinstall the lower suspension arm.

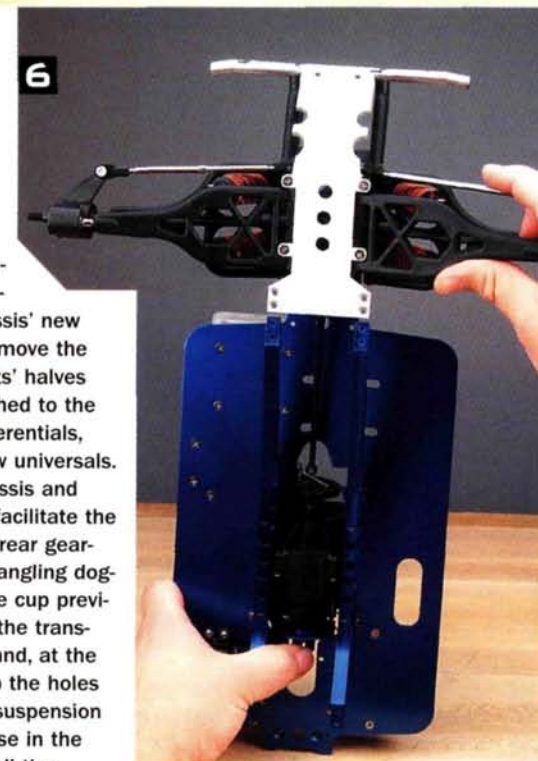


4

Step 4 Radio gear and fuel tank. It's time to install the fuel tank, steering and reverse servos, receiver and receiver box, batteries and battery box. The throttle servo originally sat in the center of the chassis just behind the front body mounts. With this conversion, it's now mounted next to the engine, just in front of the fuel tank.

Step 6 Front and rear suspension assemblies.

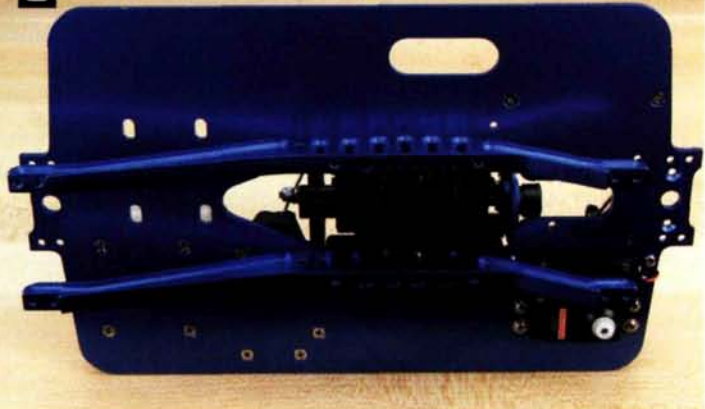
At this stage, the front and rear suspension assemblies are still separate from the chassis' new center section. Remove the original drive shafts' halves that are still attached to the front and rear differentials, and install the new universals. Then, turn the chassis and hold it vertical to facilitate the installation of the rear gearbox. Line up the dangling dogbone with the drive cup previously installed on the transmission (Step 3), and, at the same time, line up the holes in the bulkheads/suspension assembly with those in the chassis. Then install the screws that hold the bulkheads to the chassis and the screws that attach the skidplates to the lower braces. Apply a dab of thread-locking compound to each screw before you install it into the upper braces. Repeat this process to install the front suspension assembly.



6

Step 5 Drive shafts, brakes and braces. Remove the stock drive shafts' halves from the gearbox and replace them with the steel drive-shaft cups provided in the kit. Be sure to install the brake disc on the forward drive cup, and don't forget to use thread-locking compound on the setscrews. Next, grab the extended lower braces and install them and the original center gearbox. Be sure that you install both lower braces with the longer ends pointed toward the rear of the chassis (remember, the end with two slots in it is the rear). Make sure that the spur gear on the transmission is pointed toward the rear, too.

5



DRIVE-TRAIN UPGRADES

The T-Maxx was designed to handle the power of a small-block .15 engine; consequently, the workout that a .21 engine gives the drive train can cause some of the stock parts to wear much more quickly. If you install the XTM .21 conversion kit, consider beefing up the drive train with a few aftermarket parts.

Robinson Racing spur gear. The first upgrade to make is the spur gear. Robinson Racing Products makes lightweight steel spur gears with a consistent, adjustable slipper clutch that can handle the power of a big-block engine, and they're available in different sizes so you can tune your truck to your liking. Item no. RRP8472; \$43.75.

Robinson Racing steel diff gears. The diffs also take a lot of abuse; it won't be long before you'll have to replace them. Try a set of Robinson Racing steel diff gears that have been machined of super-strong steel and then hardened to increase durability. Item no. RRP8590; \$42.50.

Hardcore Racing transmission gears. Last, but not least, Hardcore Racing Components offers aluminum gears for the transmission that would work well for this conversion application. Item no. HCR-03284; \$99.

Big time!

The XTM .24 fired right up for me on the first pull, and I revved it lightly to warm it up before placing it on the ground for the first of five break-in tankfuls. When I was certain the engine was ready to go wide open, I let 'er rip. The acceleration was impressive from the first pull of the trigger; the engine has so much yank that the truck flipped over onto its lid faster than I could blink. I couldn't believe my eyes. I actually had to work to keep the front end of the T-Maxx on the ground; the .24's power made my Maxx accelerate like a top fueler. Top speed increased only marginally with the stock gearing in place, but the .24 engine could easily pull a taller gear for higher speeds.

Longer wheelbase gives the truck more agility over small bumps and much more stability on the big jumps. On landings, the extra weight of the big engine is a little too much for the stock springs, and the truck leans more in the turns because of the higher center of gravity. A set of Trinity blue firm T-Maxx springs solved the problem.



Step 7 Engine Installation. Remove the original stock clutch, flywheel and clutch bell from the Traxxas .15 engine. With the provided clutch nut, install the flywheel on the new engine. It's important to use the tapered collet from the original Traxxas engine to install the flywheel. The collet that came with the larger engine may not have the proper taper angle for the hole in the original flywheel. Finish by installing the clutch and clutch bell.

Attach the new engine mounts to the engine. The heads on these big-blocks are very large, and it is hard to get an Allen wrench to properly seat in the screw. If you have a ball-end or an L-shaped Allen wrench, you won't have a problem, but if you don't have one of those tools, remove the cylinder head from the engine for better access to the screws. Don't tighten these screws on the engine all the way because you'll need to adjust the engine position later.

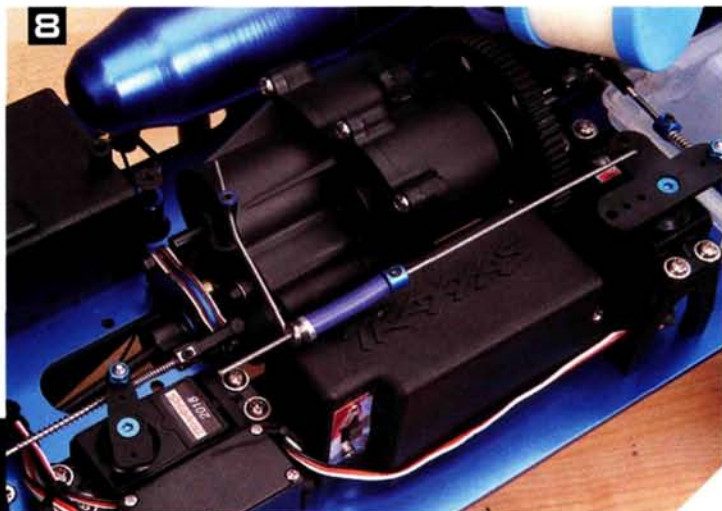
Apply another dab of thread-locking compound to the screws used to attach the engine mounts to the chassis, run them through the slots in the chassis, and thread them into the engine mounts. Again, don't tighten these screws completely; you'll need them to be somewhat loose for proper engine positioning.



To align the engine with the spur gear, move the engine fore and aft to align the clutch-bell teeth with the spur-gear teeth. Tighten the upper engine-mounting screws when the clutch bell and spur gear are parallel to each other.

To adjust the gear mesh, move the engine from side to side; you want just a tick of play between the gears. When you're happy with

the mesh, tighten the lower mounting screws; recheck the mesh to check that it's still set correctly and wasn't affected by the tightening. If the mesh is "off," loosen the screws and try it again. When the gear mesh is right, attach the header and pipe.



Step 8 Linkages. The throttle/brake servo linkages are included. The brake linkage is at an extreme angle, and this may cause it to bind. The instructions show the brake linkage mounted on the outside of the chassis and the servo pulling the brake arm. Instead, I moved the linkage to the inside of the chassis, and the linkage now pushes the brake arm. Look at the pictures to see how I hooked it up.

FINAL CHECK

Before you fire up your engine, check the throttle/brake linkages to make sure that the carb opens and closes all the way and that the brakes are set properly. If everything checks out, start the engine and begin the break-in process.

SOURCE GUIDE

HARDCORE RACING COMPONENTS (661) 294-5032; racinghardcore.com.

ROBINSON RACING PRODUCTS (209) 966-2465; robinsonracing.com.

TRAXXAS CORP. (888) 872-9972; traxxas.com.

XTM RACING; distributed by Global Hobby Distributors (714) 964-0827; globalhobby.com.

Supercharge your Stock Motor

Simple speed secrets by Gary Katzer

Stock-class racing gets more competitive every year. Even though the basic motor rules were established a decade ago, improvements in technology have allowed motors to push the envelope of performance to new levels. Today's stock motors easily outperform the older models; they even rival modified motors from a few years back.

But unlike modified motors, stock motors have inherent speed-reducing limitations; bushings instead of ball bearings, fixed timing and machine-wound armatures all affect the overall performance of stock motors. The key to stock-motor success is to minimize the effects of those limitations so that you can get the most out of your motor. With a few simple steps and just about half an hour of bench time, you can easily boost the performance of your rebuildable stocker.

Step 1. Motor disassembly and preparation

Start with a clean work area. I place a white towel under my work area, so if a shim or screw falls out, I can easily find it. Remove the two screws that hold the endbell to the timing ring and set them aside; the endbell should slide right off. Next, take off the brushes by unscrewing the retaining screws that hold the brushes on through the eyelets; then replace the screws. Gently slide the shims and the fiber washer off the top of the armature, and set them aside. Remove the arm from the can, and then slide the bottom shims off as well (they may be stuck to the bushing in the nose of the can).

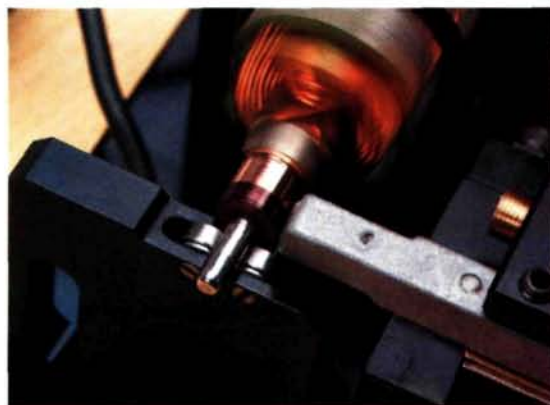
Any rebuildable stock motor will benefit from the steps detailed here, and rebuildable spec motors (like the Chameleon 2) can benefit too.



Trinity's Tru-Lathe 2 can handle all your comm-cutting needs; other good choices include Orion, Hudy, and Phantom, among others.

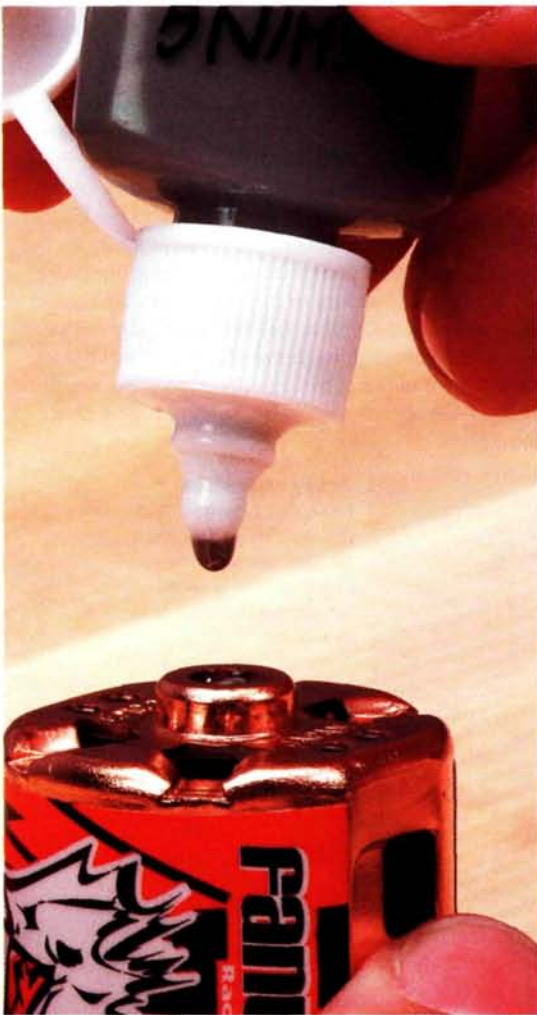
Step 2. Cut the commutator

I always cut the commutator before I run any motor. By doing this, I know I will start off with a clean, true comm. Follow the lathe manufacturer's instructions for installing the armature on the lathe, and use a 4-cell pack (or 4 to 5 volts from a power supply) to power the lathe. Once the arm is spinning, use a permanent marker to blacken the face of the comm. This will allow you to see high spots on the comm as you cut. Don't make one massive cut; instead, make slow, shallow passes to remove a little material at a time. Cobra and other manufacturers provide a cutting fluid that can help give you a super-clean cut. Once you're satisfied with the cut, pop the arm off the lathe, and use a hobby knife to clean out the gap between each comm segment so that the bits of copper shaved off when you cut the comm won't short the comm segments. Clean the armature with motor spray, and use a little compressed air to remove any remaining shavings.



When truing the commutator, first color the comm with a marker. This makes it easy to see how much material you are removing with each pass.

PHOTOS BY PETER HALL



Before you apply the bushing buster to the bushings, shake up the solution to evenly distribute the fine abrasive particles it contains.

Step 3. Bushing break-in

Minimizing bushing friction is key to maximizing stock-motor performance. Before I reassemble a motor, I put a drop or two of Trinity's Bushing Buster on the inside of each bushing. I then place an old armature in the can and work the arm back and forth, clockwise and counterclockwise, by hand; this helps to seat the bushings and to distribute the Bushing Buster compound. This takes less than a minute. Pop the old arm out and spray the bushings until the last of the Bushing Buster has been flushed out. To do a really thorough job, pass a pipe cleaner through each bushing.



Step 4. Shim the armature

Without the shims, reinstall the armature in the can to see how it sits in the magnetic field. Tighten the endbell screws to make sure that the endbell is in the same position it will be in when the motor is running. Give the arm a spin with your fingers so it centers itself in the can; then pull its output shaft down and note how much free play there is.

Every motor has a "sweet spot" where the arm is centered in the can's magnetic field, and this spot provides the most power and rpm. Most people skip this step; take advantage of that. Remove the arm, and slide as many shims as you need onto the bottom of the arm to take up the free play. For minimum friction, replace the metal shim that rides on the bushing with a Teflon shim. Many motor manufacturers now offer these; I like Trinity's. Place the shimmed arm back in the can, place the fiber washer over the comm, and reinstall the endbell. Push the arm up until it bottoms out against the endbell, and repeat the shimming process that you used for the output-shaft end. Once all the shims have been installed and the endbell is tight, spin the arm to make sure that it rotates freely.

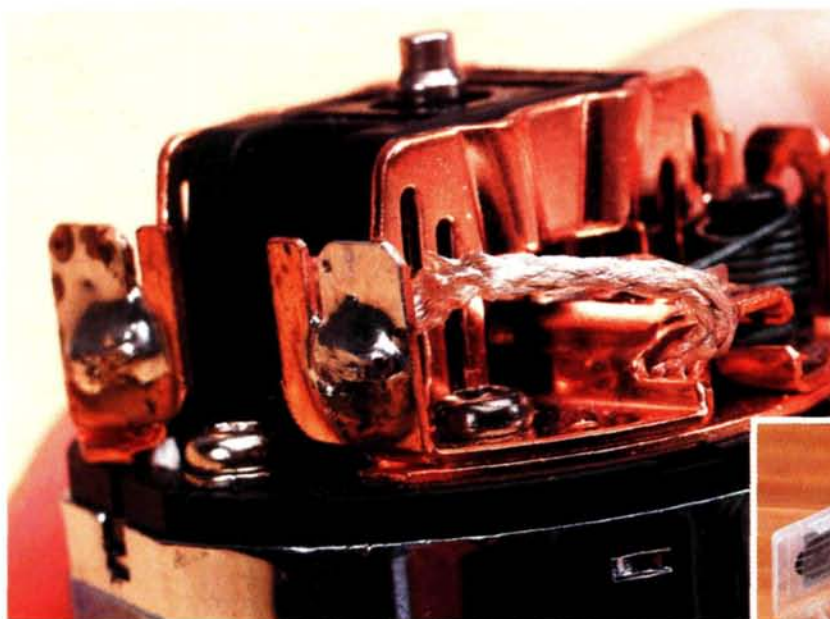
Spin the armature (attach a pinion to make this easier), then tug on the output shaft to see how much play you need to shim up. Use a Teflon shim to reduce friction where the armature step contacts the bushing. Trinity offers brass and Teflon motor shims.



Step 5. Brush selection

Different motors like different brush compounds and cuts. The Green Machine 3 motors I've tested all seem to respond very well to 4499 Trinity brushes. I center-drill the face of each brush with a $\frac{5}{64}$ -inch drill bit. I do the same with 767 Reedy brushes, which I use as a starting point on Reedy MVP and Trinity P2k2 motors. Try Reedy 766 brushes on the MVP and the P2k2, as well. I've stuck with the 767s, but I've heard of good results with 766s.

A pin vise is all you need to drill brush faces. Don't go too deep; a couple of millimeters is plenty.



By soldering the brushes directly to the hoods, maximum electrical efficiency is achieved.

Step 7. Spring selection

We're almost ready to roll. Keeping with a baseline setup, I set up my Trinity GM3 and P2k2 motors with Trinity's green negative and red positive springs to start. If you want a little more torque, add a heavier spring on the negative side. Want more rpm? Use a lighter spring. When tuning the Reedy MVP, I install the stock gold springs, with one minor modification: I lightly pull the negative spring in the opposite direction from which it was wound to reduce tension on the brushes. This should increase rpm. You can also try the red/green combo. I use Trinity springs; see the chart for their relative "tensions." Once your springs are on the motor, oil the bushings with high-quality oil available from Trinity, Fantom, Reedy, Peak and others. Now you're ready to install the motor in your favorite car.

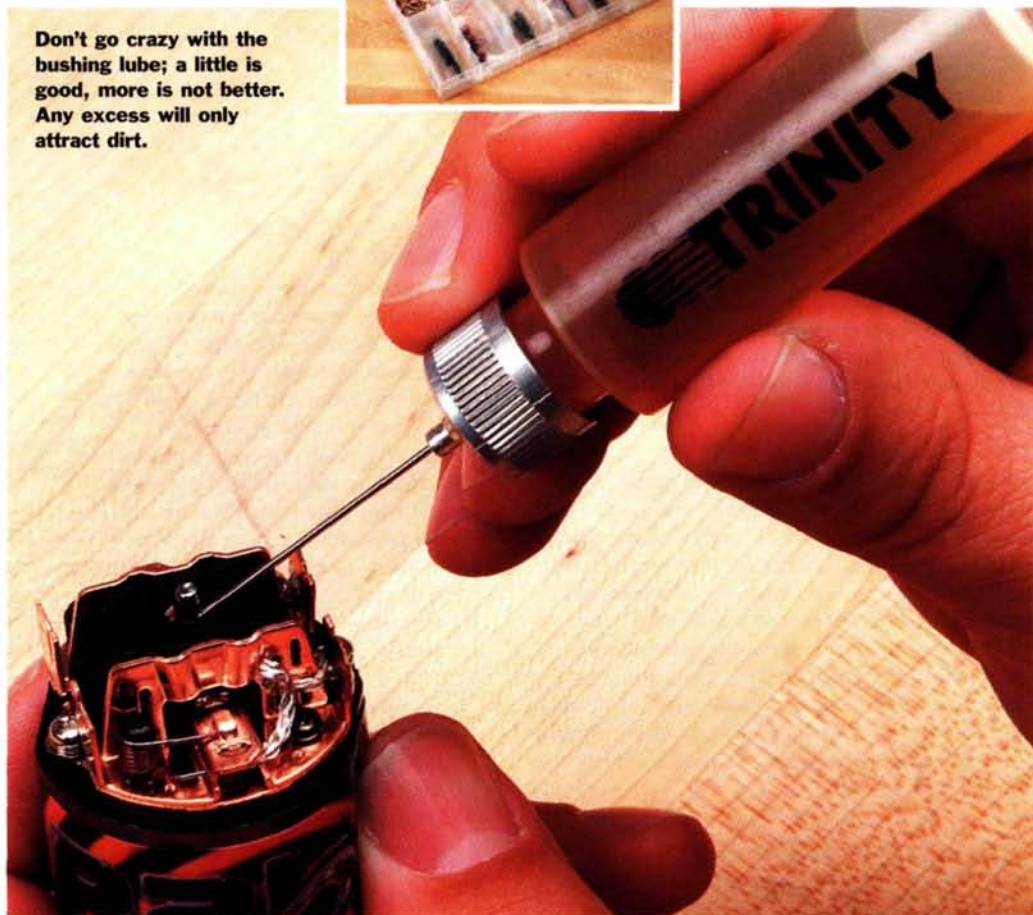
TRINITY SPRING CHART	
Weakest:	Blue
	Green
	Black
	Red
	Purple
Firmest:	Silver

Don't go crazy with the bushing lube; a little is good, more is not better. Any excess will only attract dirt.

Step 6. Brush installation

Once you have chosen your brush cut and compound, solder the brush shunts to the motor endbell tabs. This delivers power to the commutator more efficiently than if you use the screw-on brush eyelets. Use a hemostat, a third hand or a Niftech clip-on heat sink to grab the shunt about $\frac{1}{4}$ inch from the end. With a very hot soldering iron, tin the end of each shunt. Also tin the tab you'll solder the brush to. I like to solder the shunts to the same tab that I solder my ESC wires to; by doing this, I ensure that as much current as possible will go through the shunt, and as little as possible will have to travel through the hood material. Once the brushes have cooled after being soldered, slide them into their hoods.

Trinity offers dealer boxes of brushes that are way over the top for the average racer, but if you're a motor-tuning freak, they are available!



Well, there you have it. By investing a little time in your motors, you can noticeably boost their performance. These are baseline recommendations, and while they may not be perfect for every motor, they will certainly improve out-of-the-package performance. Each of these motors tends to lean either toward more power and torque or toward higher rpm. The GM3 is a higher rpm motor, great for open tracks with long straights and oval racing. The P2k2 is more of a high-torque motor that excels on off-road and twisty tracks that require lots of speed variations. In my experience, the Reedy MVP is a nice in-between motor with a higher rpm than a P2k2, yet it has more torque than a GM3. For a very small investment, you can be

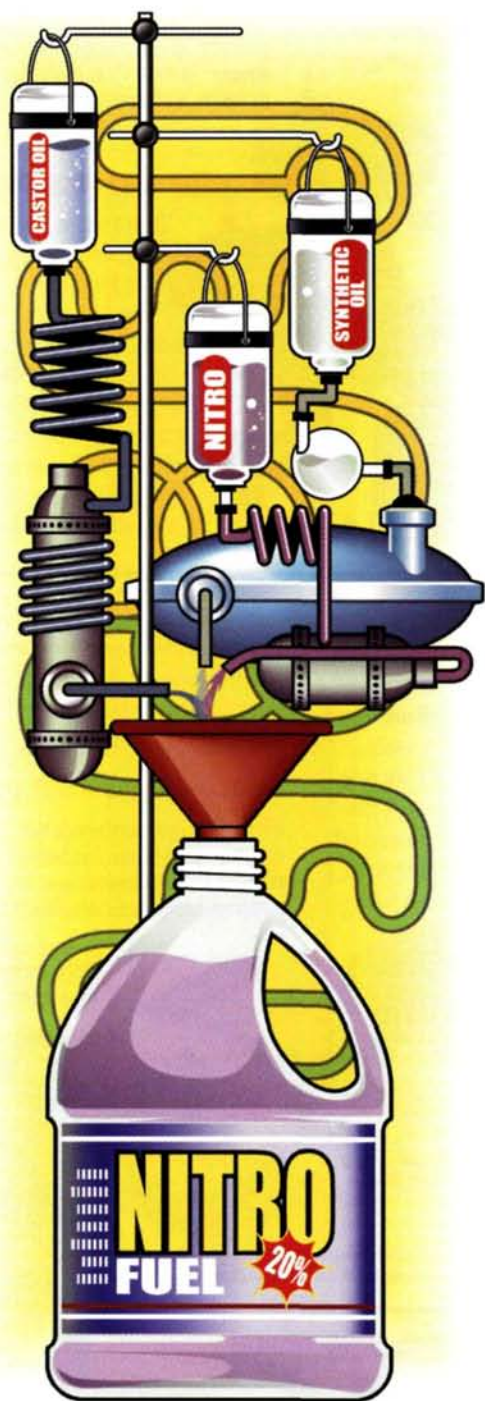
the one whom people ask, "Which turn motor are you running?" Just smile and let them know, "It's a 27-single." ■

SOURCE GUIDE

FANTOM RACING (616) 649-9583; fantom-motors.com.
NIFTECH (440) 257-6018; niftech.com.
PEAK PERFORMANCE (714) 692-8533; peakmotors.com.
REEDY a division of Team Associated (714) 850-9342; teamassociated.com.
TEAM COBRA (801) 974-5757; teamcobra.com.
TRINITY PRODUCTS INC. (732) 635-1600; teamtrinity.com.

Top Fuel Questions Answered!

When you pull up to the pump to fill the tank of your grocery-getter, gas is gas. Swipe your card, stick the pump in the tank, ignore the “remain with car while fueling” sign, and go into the convenience store for a Snapple while ten gallons slide into the tank. Done. But in the world of RC, fuel is a much bigger deal, and “gas” is not “gas.” As we all know, it’s a combination of nitromethane, alcohol and lubricants, and the mix of these components determines the type of performance the fuel will deliver—as do other factors, including how the fuel is stored, its temperature and the type of oil mixed into it. That’s a lot of stuff to wonder about, and that’s why it’s the topic of this month’s “Piston Power.” Here are the answers to your top fuel questions.



What's in RC car fuel?

RC 2-stroke nitro fuels are made by carefully mixing three key ingredients: methyl alcohol, nitromethane and castor/synthetic oil lubricants. The way these three ingredients are mixed and in what percentages dictates how the fuel will perform when burned. A typical nitro fuel mixture might be 20-percent nitromethane, 14-percent castor/synthetic lubricants and 66-percent methyl alcohol.

What do castor and synthetic oils do? Castor and synthetic oils in 2-stroke fuels carry heat away and lubricate moving engine parts. Because 2-strokers don't have external oil systems, the lubricating oil must be mixed into the fuel. The “perfect” castor-to-synthetic ratio is a hotly debated topic, but understanding the basics of what each lubricant does is easy to understand.

Castor oil's long list of positive attributes include its high lubricity (slipperiness), its ability to conduct heat and its slightly higher load factor than that of synthetic oils. Castor oil also better protects your engine against the effects of over-lean needle settings, but it can leave a varnish buildup inside the engine.

Synthetic oil is chosen for its clean burning and non-varnishing qualities. Its primary drawback is that it doesn't conduct heat as well as castor oil does.

What does oil content do for my engine? A fuel's oil content is one of the factors that determines how well the fuel cools and lubricates an engine. Using lots of lubricating oil usually extends engine life and provides more pro-

tection against poor tuning skills. But excess oil isn't always a good thing; it weakens an engine's throttle response and prevents experienced engine tuners from extracting the very last bit of performance from their engines. High oil content can also cause excess varnish buildup inside the engine, and that is certainly a concern for anyone who burns a lot of fuel.

Low-oil-content fuels have their own set of positives and negatives. “Race-only” fuels that feature low oil percentages allow engines to rev quickly and crisply, and they help experienced tuners extract all the horsepower that an engine can produce. But race-specific fuels with a low oil content simply don't protect the engine as well and will wear out pistons and sleeves faster than high-oil-content fuels.

Determining the right oil content is always a compromise between performance and engine longevity.

Most fuels contain 10- to 18-percent oil. Fuels with lower oil percentages (10 or less) are best reserved for experienced engine tuners because a lean fuel mixture (one that contains a lower percentage of lubrication) is more likely to cause excessive wear.

Fuels containing 12- to 14-percent oil are best suited to the average nitro enthusiast. That blend has enough lubricant so you don't need to be overly concerned about your engine if the fuel mixture isn't spot on, yet it still provides strong performance.

The best insurance against a lubrication-related engine failure is a fuel that's 18-percent lubricant, but that much oil may cut into the engine's power potential.

12R SS RACING ENGINE



1+ HORSEPOWER

The new line of HPI Nitro Star 12R engines feature true ABC construction with a long-lasting hard chrome sleeve, aggressive porting and big 5.5mm carburetors. To keep the engine running cool we added a large machined aluminum purple anodized heat sink head and a black heat sink coating on the case. The result is a 1+ horsepower engine that will make your nitro touring car scream. We offer the 12R engines in 3 different models, give one a try!

ROTARY CARB

Two of the 12R engines feature our 5.5mm rotary carb with dual needles that allow you to easily adjust the low speed and high speed settings. Our rotary carb is one of the easiest to tune on the market, and it bolts into most cars without special throttle linkage. The big 5.5mm rotary carb is offered on the 12R SS with and without pullstarter.

SLIDE CARB

Our highest performance version, the 12R SC, has a 2 needle slide carb and no pullstarter. The 5.5mm slide carb has a little less restriction for more airflow and more power. You'll need our A889 linkage set for installation on most nitro touring cars.

- Truckers... we recommend our torquey 15SS for you! -

HPI Nitro Star 12R engines are in stock now!

- #1623 Nitro Star 12R SC Engine (Slide Carb, No Pullstart)
- #1626 Nitro Star 12R SS Engine (Rotary Carb, No Pullstart)
- #1627 Nitro Star 12R SS Engine (Rotary Carb, With Pullstart)



HPI Power Fuel

- #74318 HPI Power Fuel 20% Nitro (1 quart)
- #74320 HPI Power Fuel 30% Nitro (1 quart)
- #74348 HPI Power Fuel 20% Nitro (1 gallon)
- #74350 HPI Power Fuel 30% Nitro (1 gallon)

Built-in Voltmeter!

#74108 Pro Glow Igniter with AC Charger (120v)

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PISTON POWER

How can I maximize my fuel's performance? A couple of tricks from the racing world can help you get even more power from your fuel. The first really isn't a trick at all: to get the best performance from your fuel, make certain that it's fresh. Alcohol attracts moisture as if it were a magnet, and watery fuel diminishes performance. When your fuel bottle is open, the alcohol in the fuel takes moisture from the air and replaces power-producing molecules with water molecules. So unless you're fill-

ing it, keep your fuel bottle closed at all times and away from highly humid areas.

The second trick is to cool the fuel as much as you can; this isn't news to the racing world. Formula 1, CART and NHRA top fuel cars all run on methanol, and the NHRA and drag-racing vehicles use a blend of nitromethane and methanol. These racing teams are very familiar with the extra power that cold fuel produces and have been cooling their fuels for years.

Why should I keep my fuel cool? Cold fuel is denser than hot fuel, and the denser your fuel is when it enters the combustion chamber, the more "bang" you'll get per cycle. Simply put: cold fuel equals more power. Even fuel that's only 5 degrees cooler than ambient temperature can produce extra power.

Trinity's Nitro Cooler bags work perfectly to keep fuel cool without the worry of someone mistaking your fuel for a tasty drink (that's why you shouldn't keep fuel in a picnic cooler).

NEW FOR NITRO

MUGEN SEIKI Aluminum clutch shoes

These new aluminum clutch shoes are more durable and enhance performance compared with generic carbon shoes; they fit stock Mugen, GS and OFNA buggy flywheels that use 3-shoe clutches. Mugen Team drivers have reported more snap on high-bite tracks and zero fade during long Mains.

Item no.—C0754; \$20.



O.S. ENGINES T-1030 tuned pipe

The T-1030 is O.S.'s latest small-block power pipe. This good-looking, mirror-finish-aluminum unit is specifically designed for maximum power from top-of-the-line, competition small-



block engines, so strap it into a touring car or stadium truck. The T-1030 comes packaged with an adjustable, threaded pressure fitting, a 3mm screw and detailed instructions.

Item no.—0572103030; \$70.

Return of the Ripper

In December 2001, I was invited to attend the R/CMTRA monster truck challenge at the Westchester Radio Aero Modelers (WRAM) show in White Plains, NY. Since I'm the "4x4" guy, I couldn't show up with just any truck! I decided to revisit the Thunder Tech Ripper I built for my October 2001 column. Check it out.

Chassis. Thunder Tech Racing's Ripper chassis for the Tamiya Clod Buster is basically a pair of compact graphite plates connected by eight, black-anodized, aluminum cross-members. A small, light carbon-fiber radio plate is mounted on the two upper, center cross-members, and the body mounts are constructed of black-anodized aluminum plate. I replaced most of the stock hardware with stainless-steel flat-head screws and purple washers from GS Racing. Bling!

Steering. I installed Thunder Tech's two-piece servo mount/bumper on the front gearbox. I attached the top of the mount to the upper braces on the gearbox, and the bottom to the gearbox using the existing holes. The servo and mounting screws tie the upper and lower pieces together. I replaced the stock Ripper lower link with another custom-made titanium piece from Lunsford. A standard Lunsford link connects the wheels to a heavy-duty Kimbrough servo-saver.

I locked the rear wheels in place with Thunder Tech Racing's rear steering lockout kit; this includes two graphite links and a carbon-fiber plate that's attached to the gearbox. The lower link connects the left and right steering hubs and sets toe-in, while the upper link is attached to the carbon-fiber plate to prevent the wheels from steering. The included graphite lower link is fine, but I replaced it with a titanium link anyway (if you got 'em, use 'em, I say).

Left: the front gearbox is protected by Thunder Tech's bumper/servo-mount combo. It's light and strong. The stock Associated shocks provide a smooth ride. Progressive Suspension reservoirs smooth the ride even more and add a little "bling." **Below:** I locked out the rear steering using Thunder Tech's rear steering lockout kit. Those wheels aren't going anywhere!

Suspension. I replaced the Ripper upper links with heavy-duty adjustable titanium units that were custom-made by Kelly Lunsford of Lunsford Racing for a previous project. The upper links allow me to adjust the angle of the Clod gearboxes quickly and easily. Four Team Associated shocks suspend the chassis and are outfitted with 20WT shock oil, no. 2 pistons, silver springs and Progressive Suspension purple-anodized reservoirs. More bling!



PARTS LIST

TAMIYA

Clod Buster—58065; \$234.99.

Chassis

GS RACING

Cone washers—gsc1130;

\$4.50/pair

Concave washers—gscw110;

\$6.50/pair

THUNDER TECH RACING

Ripper chassis and suspension—RIPP-01; \$28.

Suspension and Steering

PROGRESSIVE SUSPENSION

Piggyback Reservoirs—PBR-1002; \$62.50/set of 4.

TEAM ASSOCIATED

Hard-anodized shocks—7408; \$26.99/pair.

THUNDER TECH RACING

Bumper and servo-mount combo—ALU-CB04; \$4.

Rear-steering lockout—CF-CB25; \$30.

Accessories

GS RACING

Purple wire—gscw123; \$2.95/pair.

IMEX

Clod/TXT-1 Baja tires—7584; \$30/pair.

PRO-LINE

98 Ford F-150—3083-00; \$23.

Electronics

AIRTRONICS

M8 Radio—90280; \$269.99.

FUTABA

Steering servo—S9450; \$139.99.

LRP

Quantum Pro Reverse—LRP8430; \$154.99.

Phaser receiver—LRP8401; \$84.99.

REEDY

R3K 6-cell unassembled battery pack—636; \$62.99.

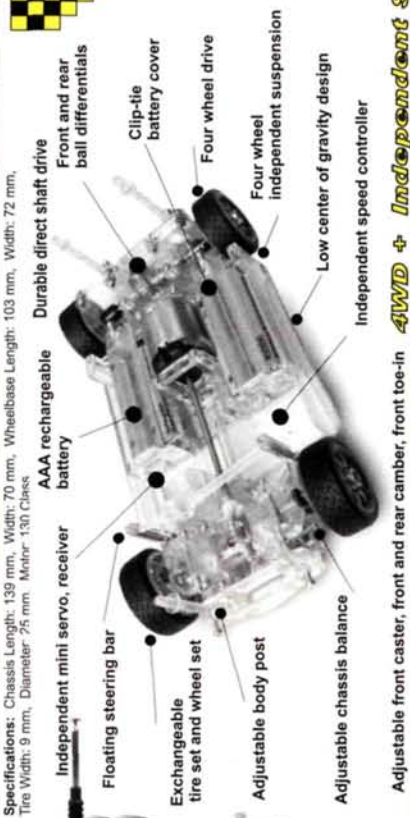
TRINITY

P-94 16-double motors—P9216; \$95 each.

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Tx, Rx, ESC, Servo, Battery not included. Combo kit available.

Painting & decal not included

Comes with lexan body, window and painting mask, and with antenna tube

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4 X 4



Above: I used a set of Imex Baja tires wrapped around Tamiya Clod Buster rims. These tires get great traction on carpet, and they weigh less than the stock Clod tires. Right: I used a LRP Quantum Pro Reverse ESC and Phaser receiver because they work well and are light.



Body, tires and wheels. I covered the chassis with a Pro-Line F-150 body originally meant for the Traxxas Stampede. The wheelbase doesn't quite match the truck's, but I couldn't resist its good looks. I made stencils on a Roland Stika machine and painted all the sponsor logos on the inside of the body with Parma Faskolor paints. Imex Baja tires on stock Tamiya Clod Buster rims finish the truck off; I could have used sexier aluminum wheels, but the Clod hoops are light and this is a race truck, after all.

Electronics. I wanted to minimize the truck's weight, so I continued the light theme in the electronics department as well. I installed an LRP Quantum Pro Reverse ESC to handle the voltage and an LRP Phaser receiver to catch the signals from my radio. I replaced the stock wires on the ESC with purple wire from GS Racing (to match the purple washers). A Futaba 9450 servo steers the wheels.

My old Trinity 16-sin-

gle D3.5 motors were between trucks, so after tweaking their timing and cutting their comms, I threw them into the mix. A Reedy R3K 3000 NiMH battery pack supplies the volts.

PERFORMANCE

I knew that I'd be racing my truck on a straight-line carpet track with some jumps, so I set up a jump in the hall at the office and began my tests. I was very impressed by the truck's acceleration; it lifted the front wheels and took off like Wile E. Coyote on Acme rocket skates.

Steering was also impressive; the Futaba servo didn't have any trouble moving the big Baja wheels. I lined the truck up and headed for the ramp. It jumped well, but I wasn't happy with the front wheels' slight hop on the landing. Before messing with shock fluids and springs, I decided to call the Thunder Tech guys and see whether they'd be able to offer me any setup advice. Their suggestion



couldn't have been simpler: drill an extra vent hole in each rim! Why didn't I think of that? Problem solved; the Ripper now lands as if it's on suction cups.

AT THE SHOW

I headed to the WRAM show with confidence, and my truck handled the course well, but I blew it anyway. Our own Bob Hastings, author of "Body Shop," won with a truck that I built and lent to him! I can't believe I was beaten by "the paint guy." For the record: I just let race jitters get to me, but these are good excuses:

- The sun got in my eyes. Yes, it was an indoor event, but I'm telling you, the sun got in my eyes.
- I was holding back to avoid hurting Bob's fragile ego.
- My truck had so much power that it buzzed the fabric off the carpet and I couldn't get traction.
- The convention-center PA system was on my frequency.
- The smell of hot dogs and glow of heat lamps from the concession stand distracted me.

TRICK TRUCK STUFF

NEW ERA Center skidplate for the Tamiya TXT-1

Protect your TXT-1's transmission with this heavy-duty, multi-piece skidplate from New Era. Bolt it directly to the stock TXT-1 chassis (all the necessary mounting hardware is included). All the pieces are constructed out of strong aluminum, and the sides of the lower plate are slightly bent to increase rigidity. With a little elbow grease, they can be polished to a great shine. Center skidplate—TXT334; \$19.95.



IMEX Jumbo Maxx tires and rims

Are the tires on your T-Maxx just not big enough for you? Check out these meats. They measure 5.75 inches (146mm) tall by 4.625 inches (118mm) wide and come in two tread patterns: Claw Dawgs and Chevrons. Foam inserts support the outer carcasses. No, they won't fit Maxx wheels and that's why Imex sells Jumbo Maxx rims. The Jumbo rims are a direct replacement for the stock rims and come in two chrome-plated patterns: Sayville spokes and Diamonds. Jumbo Maxx tires—7411 (Claw Dawg) 7410 (Chevron); \$35/pair. Jumbo Maxx rims—7068 (Diamond) 7066 (Sayville spokes); \$25/pair. ■

TALK TRUCK!

Send your "4x4" questions and comments to Kevin Hetmanski, at kevinh@airage.com.

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FUTABA; distributed by Great Planes (800) 682-8948; futaba.com.

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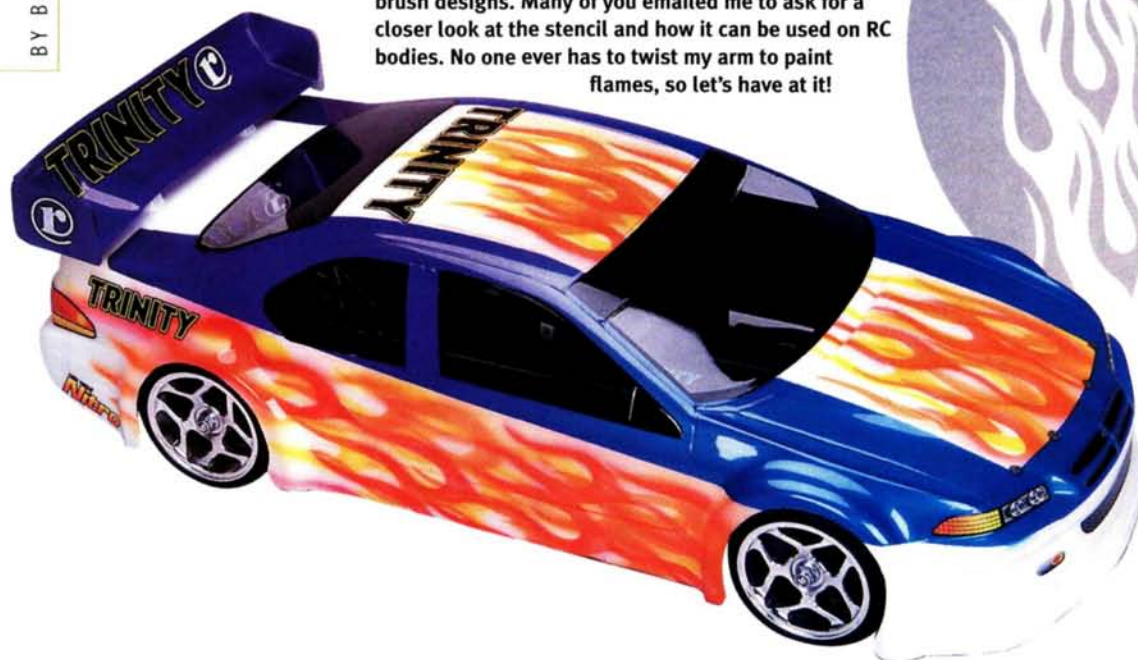


#7610 Honda Civic Coupe (150mm W.B.)

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Fast Flames Simply Stenciled

Last month's "New in the Shop" featured Artool's Flame-Dango stencil—one in a series of stencils that make it easy to create complex-looking airbrush designs. Many of you emailed me to ask for a closer look at the stencil and how it can be used on RC bodies. No one ever has to twist my arm to paint flames, so let's have at it!



Artool Products' flame stencil makes fast work of creating authentic flames.

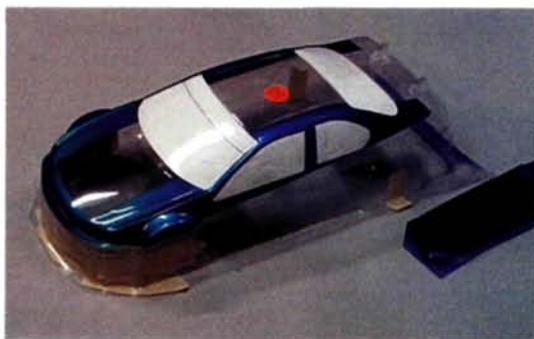


1 For starters, I masked off a basic block design.



3 The design on my Trinity Reflex makes full use of the stencil. The cool thing about the finished design is that it looks as if it was really difficult to do, but you'll see it's pretty easy! Apply masking tape to both sides of the stencil, leaving only one flame "open." Hold the stencil on the inside of the body, and spray around its edges with Pactra transparent yellow to create a very open, airy-looking flame. Don't worry about filling in the design or that the edges are fuzzy; the beauty of a stenciled flame design is the realism achieved by the soft edges.

2 The unmasked areas should be fairly plain so that they don't "compete" with the flame section that will come later. I laid down a purple-to-blue fade on the open portion and on the rear spoiler.



4 Let the flame paint set for a few moments, and then flip the stencil so that the "lick" goes in the opposite direction. Follow the same procedure to run the pattern from the back of the body to the front. As you get closer to the front, throw in a few overlap-

ing flames to build up the intensity of your "inferno." Having laid down the basic design, I like to further soften the edges by connecting the flames with a light overspray. You can further enhance the realism of your design by creating wisps of fire that run from the tips of the flames and trail backward.



5 Now that you've laid down the first color, let's add another layer. Follow the same steps, but this time, spray transparent orange flames into the open areas. Red is the boldest color of the flame spectrum, so we leave that for last. It will bleed through the yellow and orange and add depth to the flames' overall look.



6 Having completed the flames, it's time to intensify their hue by backing the body with white. Silver would also work, but the main thing is to protect the flames from being "washed out" by a dark backing color. You'll be amazed at how the stark contrasts between the flames, shadows and center white sections give the scheme "punch."

CONTACT THE BODY SHOP

Send "Body Shop" questions and comments to Bob Hastings, at bobh@airage.com.

NEW IN THE SHOP

RPM Snap-Tite Body Savers

It's only a matter of time before the areas around the body-post holes are scratched by the body clips or under-body supporting pins. RPM's Snap-Tite Body Savers are two-piece protective inserts that are available for 1/4- and 3/16-inch body posts and include an insert to protect the antenna area, too.

Item no. 80332; \$2.95.



RPM Body-Post-Hole Punch

How many times have you made your body-post holes too large with one twist too many of your razor-sharp super-reamer? RPM's new punch gives you a perfect 5/16-inch hole every time. Mark where the holes should go on the body, place a block of wood behind the body for support, then smack the punch home with a hammer. Presto!—one perfectly round, clean-edged hole. The punch includes a cap to protect it from being dulled when not in use. Hammer and hunk of wood not included.

Item no. 70880; \$3.95.



7 If you choose to paint in your window moldings, it's a good idea to spray silver around the window-mask edges to ensure the white's opacity. Follow the same procedure for the full flame mask, and then back the entire body with a coat of white.

Clean your airbrush, stencil and work area and then apply the body decals. At first glance, the stencil may look to be of limited use, but your free-flowing application/scheme won't be like anything else that shows up at the track.

You're in charge of how the flames are positioned and filled, and you won't have to plunk down \$5 for a new set of flame masks the next time you want to add fire to your ride; just reuse the stencil. Have fun making your own personal design. Whether you apply intense colors or subtle ghost flames, you'll be impressed by your results. Now go paint something and see for yourself!

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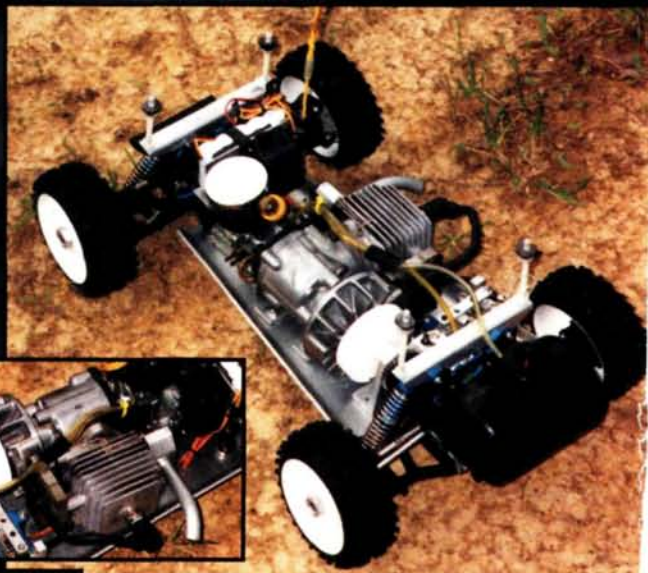
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RANDOM RADIO CONTROL RAMBLINGS

Too much is never enough? Well, this is enough.

Alan Scholes' unique stadium truck started out as a Thunder Tiger Mirage V-Spec with a .21 engine, but he bumped the displacement up to 31. No, not ".31"; Alan installed a 31cc weed-trimmer engine! By comparison, a .21ci engine displaces just 3.5cc, and we all know that's still enough for wheel-spinning, dirt-roosting action. This truck's engine is nearly 10 times bigger! Alan says he bought the engine as a remanufactured unit for just \$60 and used CAD software to design a new 6061 channelled-aluminum chassis; hey, he is a mechanical engineer, y'know! Check out these other features:

- Stretched 13-inch wheelbase.
- Rear-wheel drive (no room for the original 4WD stuff!).
- Cable-operated throttle.
- Custom-machined clutch bell fitted to a shortened crankshaft.
- Custom-machined steel gears.
- Custom-machined intake manifold with K&N filter.
- Kyosho Landmax F-150 body.



And the ride? Alan says, "I have been pleasantly surprised by the performance of the truck; at first, there was just too much torque, and it was hard to control, but after I had installed an intake restrictor, it settled down nicely and is a perfect backyard basher."

The engine is very reliable, doesn't flame out and will idle all day long. Run time is 45 minutes to an hour on one tank of fuel. I love running without making pit stops!" Still, Alan hasn't finished with this beast yet; he plans to increase its durability with heat-treated gears and will make "other improvements as needed." One thing is for certain: "more power" isn't on that list!

KNOWLEDGE OF EYEBALLS WINS PRIZE

Last month's "Page O' Fun" featured a secret contest that challenged you to explain the optical phenomenon behind the "disappearing pylon" trick. For those of you who missed it, the teeny-tiny type beneath the picture explained the contest, which was simply this: the first person to correctly explain why the pylon disappears wins a prize. Jalem M. Getz was the quickest at the keyboard with his correct answer:

"The cone disappears because as you move closer to the picture, it falls on the optic nerve head, the hole in the photoreceptor sheet, so your brain tricks you into not seeing it. The sheet of photoreceptors is much like a sheet of film at the back of a camera. But it has a hole in it. At one location, called the optic nerve head, processes of neurons collect together and pass as a bundle through the photoreceptor sheet to form the optic nerve, which carries information from the eye to the rest of the brain. At this location, there are no photoreceptors, and hence, the brain gets no information from the eye about this particular part of the picture of the world."

I was impressed by how many of you responded with correct answers, and I enjoyed the guesses, too: "The pylon disappears because your eyelashes get in the way" was the best. Thanks for playing, and break out your magnifying glass: there's a new secret contest in this "Backlot"!

TATTOO CONTEST UPDATE

Gregory Martin Castillo was the first to send in a tattoo design for the contest we announced in June 2002's "Backlot." To win, your tattoo design has to be here by June 30, 2002 (which means you probably have a day or two left to get it in), and you'll have to do an even better job than Greg. Good luck!



BACKLOT FEEDBACK

HIS LEFT? I MEANT YOUR LEFT.

Regarding your "Real RC guy" ("Backlot" June 2002): he must be a real RC guy; it's his right arm that's overdeveloped, not his left; I hope he knows the difference when he adjusts his servo-reversing switches!

Just a reader who reads "Backlot" first—
Chuck Derrow

You're absolutely right, Chuck! Many other readers let me know about the goof, too, but you were the first. A Radio Control Car Action T-shirt is on its way.

—Pete

HATE FROM NATE

I know that Chris Chianelli has gone away to do other things, but "Backlot" has just become the WORST Lot of the magazine. Over the past three months, I have been disappointed again and again by what we have received. I think you did a fine job as Executive Editor (at least, as far as I noticed, you haven't screwed up anything before), but I really hope that you will find someone else for the "Backlot" or do something to bring back the COOL STUFF and GREAT INFORMATION that "Backlot" had when Chris was there. Or would it be more appropriate to do what last month's RC Word Find said?—"Don't waste your time Those words aren't in here."

Nathaniel Dragon

Ouch! That zinger at the end really got me. Wait, I'm channeling the spirit of Chris right now ... "Peeete ... don't pay any attention to that guy ... you can't please everybody ... life's too short to be a sheeeeeep" Hey, thanks Chris! Nathaniel, if it makes you feel any better, I don't plan to write "Backlot" every month; basically, whichever editor has something cool or funny or thought-provoking to share, gets to do "Backlot." But what I'd really like to see are more pieces about you guys—our readers. If you have something to share, send it here! —Pete ■